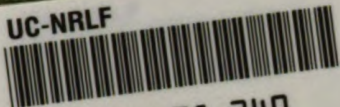


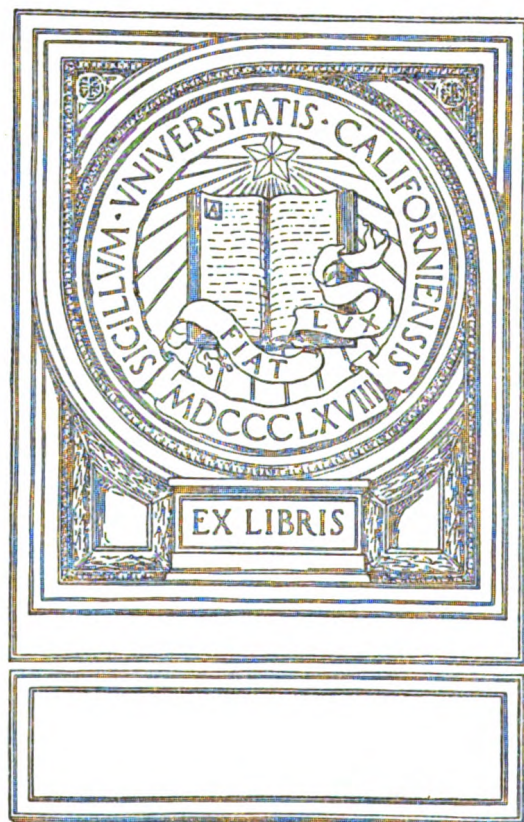
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# HE'S IN THE PARATROOPS NOW

BY A. D. RATHBONE, IV







HE'S IN  
THE PARATROOPS NOW



He's tough, this typical representative of the United States Marine Corps Paratroops.

# HE'S IN THE PARATROOPS NOW

By

A. D. RATHBONE, IV



ROBERT M. McBRIDE & COMPANY

New York

1942

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## ACKNOWLEDGMENT

IN THIS ENDEAVOR TO present a picture of the Paratroop Battalions of the American Armed Forces, I am sincerely grateful for the data, suggestions, and assistance received from: the United States Army, the United States Navy, the United States Marine Corps, the United States Department of Agriculture, Irving Air Chute Company, Inc., Switlik Parachute Company, and many individuals within and without these organizations. For the illustrations made available, I am indebted to the United States Army Signal Corps, the United States Navy and Marine Corps, *Scientific American Magazine*, and RKO Pictures, Inc.

For counter-intelligence reasons, certain training and armament details concerning our parachute troops must remain a wartime secret. However, rest assured that whatever our paratroopers may have learned in training and in actual battle that cannot be mentioned herein will be brought back to us by the men themselves, when they have successfully completed their job—and to them, with esteem and admiration, this book is dedicated.

A. D. RATHBONE, IV.

Chappaqua, New York.

November 11, 1942.

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HE'S IN  
THE PARATROOPS NOW



## Chapter One

A PARATROOPER STARTS  
HIS TRAINING

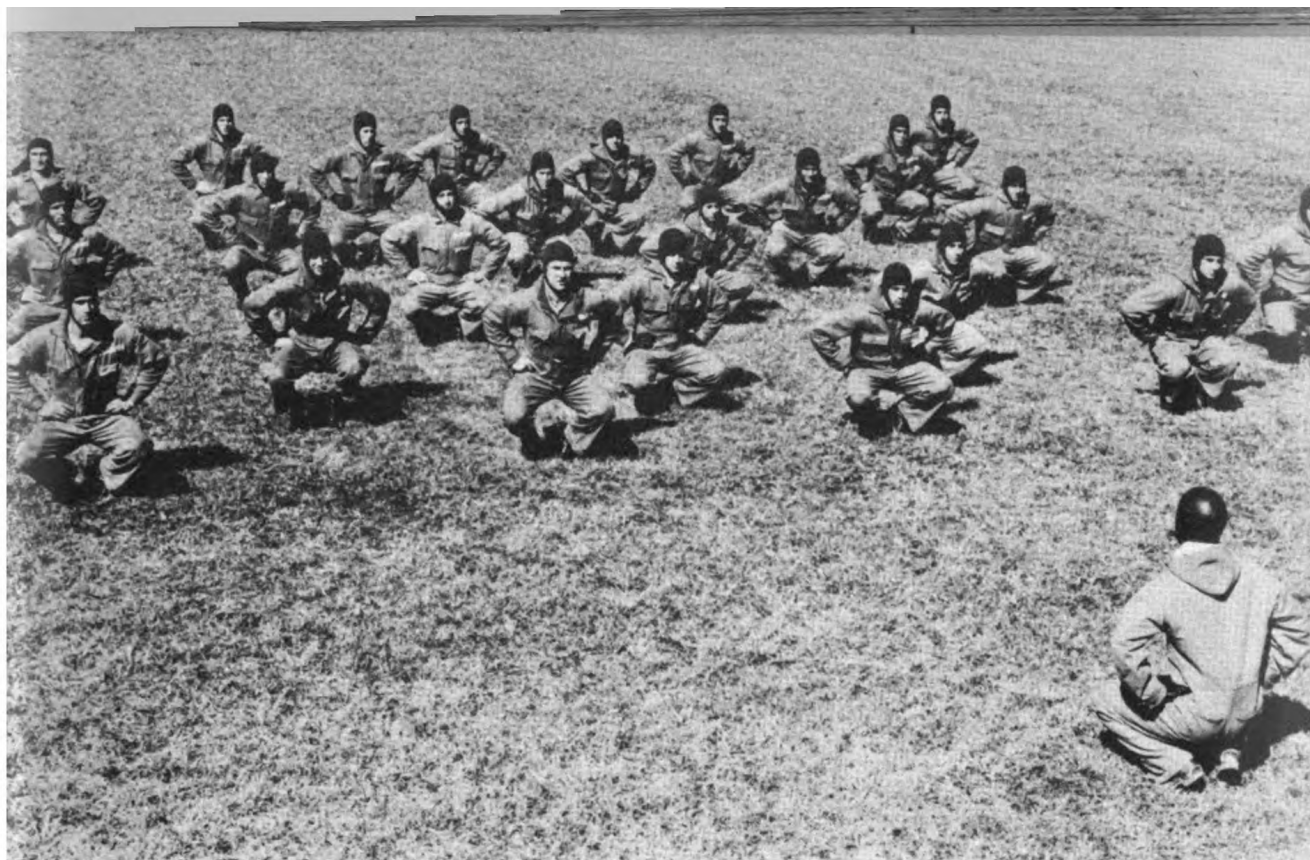
WHEN THE BUGLER SOUNDS reveille for a new class of would-be parachute soldiers in a United States Marine Corps or Army Paratroop Training Center, it signalizes the start of one of the most strenuous physical training programs ever devised for warriors. It means the beginning of an intensive course in the expert use of more varieties of firearms than the infantrymen are ever called on to handle. It starts the new men on their way toward an intimate association with dynamite, TNT, and similar violent explosives in connection with sabotage and destruction. It signifies an intensive study of radio and other forms of communication; of map making, map reading, and topography; of the rudiments of meteorology, and sufficient astronomy to gauge time and direction by the stars. The military tactics of the platoon, the company, and the battalion must be as solidly learned for cooperative warfare as the individualistic Indian fighting methods must be mastered for the paratrooper's protection and efficiency when he is on his own. To assimilate this many-sided education successfully and to put it to formidable use against the enemy, a man must be, or learn to be, a "cold-jug"—the paratroopers' own term for an always cool, clear-headed soldier who fears absolutely nothing.

After reveille, in an all-too-brief fifteen minutes, these new soldiers of the sky, like all other men in the Army, will wash,

dress, make their bunks, and be outside the barracks on the parade ground, where they will get their first taste of what the Army terms "conditioning exercises." So vigorous are they that even healthy youngsters are left, at first, feeling that they are worn-out old timers of thirty-five years or so—for the paratroops demand only the young and the fit, and, save for officers, no one over 32 years old is admitted to the corps. Indicative of the strenuousness of the physical portion of the training, the first morning's workout consists of a 45-minute set of calisthenics, followed by a fast-stepping run of three-quarters of a mile. Later on the calisthenics period will be lengthened to an hour, and the run will be stretched out to a mile and a half. These conditioning exercises have been carefully designed and arranged by expert physical instructors to build, develop, and strengthen the muscles a paratrooper needs most—and that means just about every one he has, and probably, during the first week or so, acquaintance with a lot he never knew he had.

Arm and shoulder strength, for example, is going to come in very handy later when there may be need of those important muscles to pull the risers, or shrouds, of the parachute in order to stop serious oscillation or to direct the fall to a specific piece of terrain which offers more favorable landing conditions than does the ground directly beneath the parachutist. Or it may become necessary to guide a parachute as closely as possible to the military objective to which the troop has been assigned, and wind currents, atmospheric conditions, and other factors that will be studied may be none too favorable. At these times dependable shoulder and arm muscles, capable of taking a severe beating and still continuing to function, will come in very handy—may even save lives.

Although it's unlikely that youthful appetites need any urging, the exercise before breakfast makes bowls of cereal, piles of pancakes, bacon, ham, eggs, and potatoes disappear as if by magic.



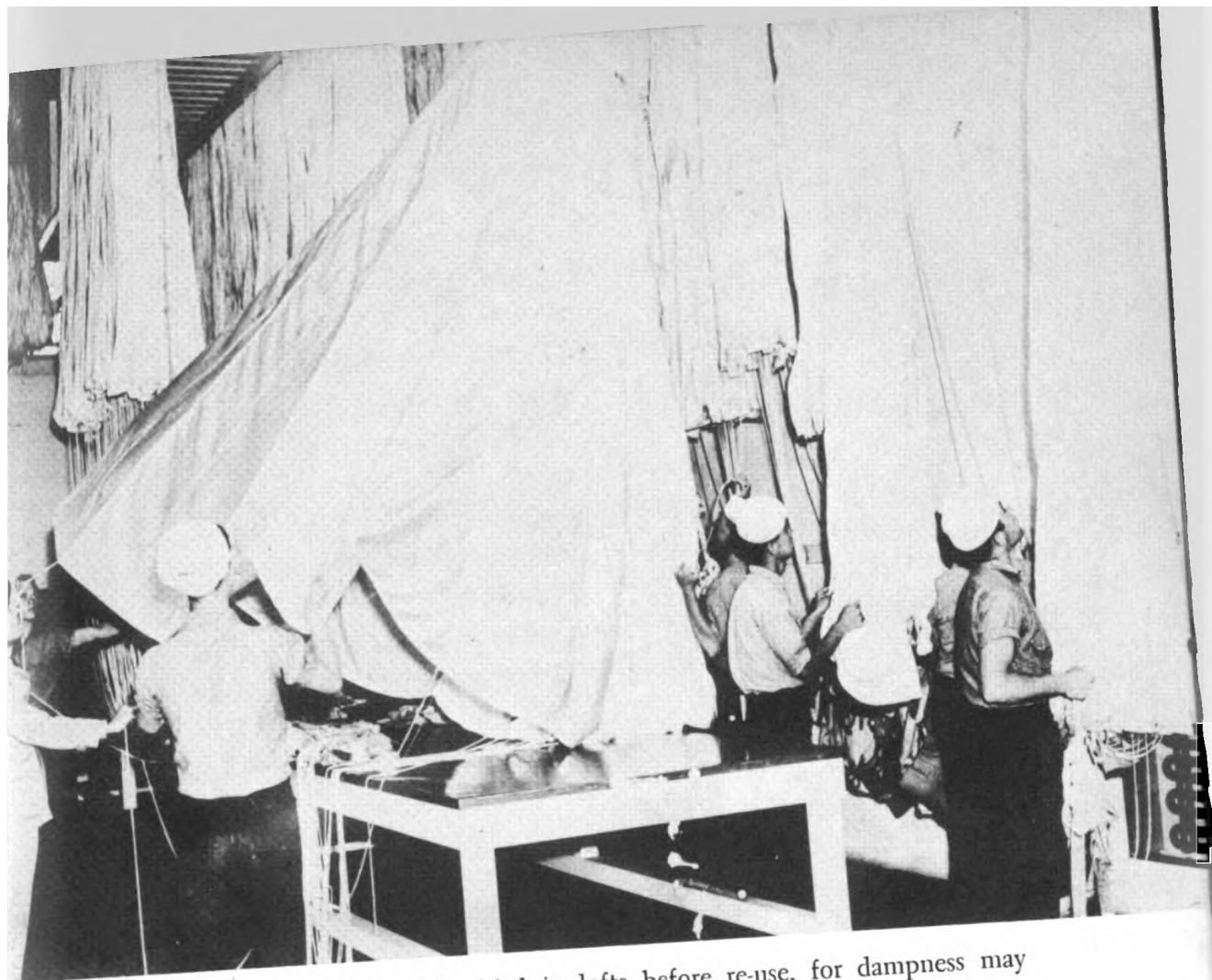
Not very different from ordinary setting-up exercises but—this is only the beginning!

The Army feeds its men well and sumptuously, for good food builds strong bodies even stronger, and every meal is a real he-man repast, carefully planned as to dietary requirements.

Following inspection and drill, comes one of the most important phases of the training of a paratrooper—a course in parachute packing, inspection, and technique. The newcomer begins almost at once with the thing his life depends on—his parachute. During a succession of daily four-hour periods over a space of six weeks he learns it like the palm of his own hand; its construction, nomenclature, potentialities, and use. He packs and repacks the whole affair, each fold meticulously in its certain position, constantly aware that a mistake here may mean his life aloft. And after he has packed and repacked until he feels he could do it backward—he starts all over again.

Yes, packing a parachute is an art, and every paratrooper becomes an artist before he finally gains his silver wings. He learns that light and fragile as that 28-foot-diametered, mushroomlike canopy of silk may appear, with its weight of only 1.35 ounces per square yard, it is really tough. The canopy, composed of 112 pie-shaped pieces of double-sewed pure white silk, has a tensile strength of 40 pounds per inch; those braided silken shrouds each have a tensile strength of 450 pounds; and the webbing which forms the harness, the risers that connect with the shrouds, and the static line can all stand more strain than the paratrooper can.

Just how many times each student will pack his chute in the course of his training depends on the man, on his aptitude for learning and familiarizing himself with each phase of this rather complicated technique. But of this we can be sure—he will know the routine forward and sideways—he'll probably see it in his dreams, and may even develop a few good nightmares about it before he is graduated; but know it he will, as he has never known anything else. There are many other important things



Parachutes are thoroughly dried in lofts before re-use, for dampness may prevent their functioning properly.

for a paratrooper to learn, but none more vital to his own safety than the packing and manipulation of his parachute. Indicative of the stress laid on parachute packing by the Army, a fledgling paratrooper can anticipate putting in approximately 50 hard hours—perhaps less, probably more—during the first six weeks of training. Never forget, there can be no poor or careless parachute packers!

At noon it's not a lunch, but dinner, and a full-fledged one, to prepare the men for an equally busy afternoon which begins with schooling on basic subjects, such as the first elements of firearms, explosives, and topography, and the other knowledge necessary to the fighter who drops from the clouds behind enemy lines.

If any recruit thinks of somersaulting as one of those minor arts acquired in boyhood days along with "mumblety-peg," "duck-on-a-rock," and other normal childhood pursuits, he will not have been a resident of a paratroop training camp for long before he finds that the better somersault he was able to turn in kid days, the easier will be part of his training today. And if, by chance, he once took a course at the YMCA in circus tumbling, parallel and horizontal bar work, or handstands, handsprings, and other gymnastics, he will be exceedingly fortunate, for he will then have an inherent mastery of the first principles of the art of falling safely. In the weeks of strenuous physical training that are to pass before the fledgling paratrooper will be permitted to make his first parachute jump, he is destined to become, among other things, a first-rate circus or exhibitionist tumbler.

It has been said that little children have experienced their first serious falls without suffering severe injury for the reason that they have not the mental capacity to realize they are about to be hurt. However, as the child grows and suffers further tumbles it discovers that a fall may hurt, and thereafter when it

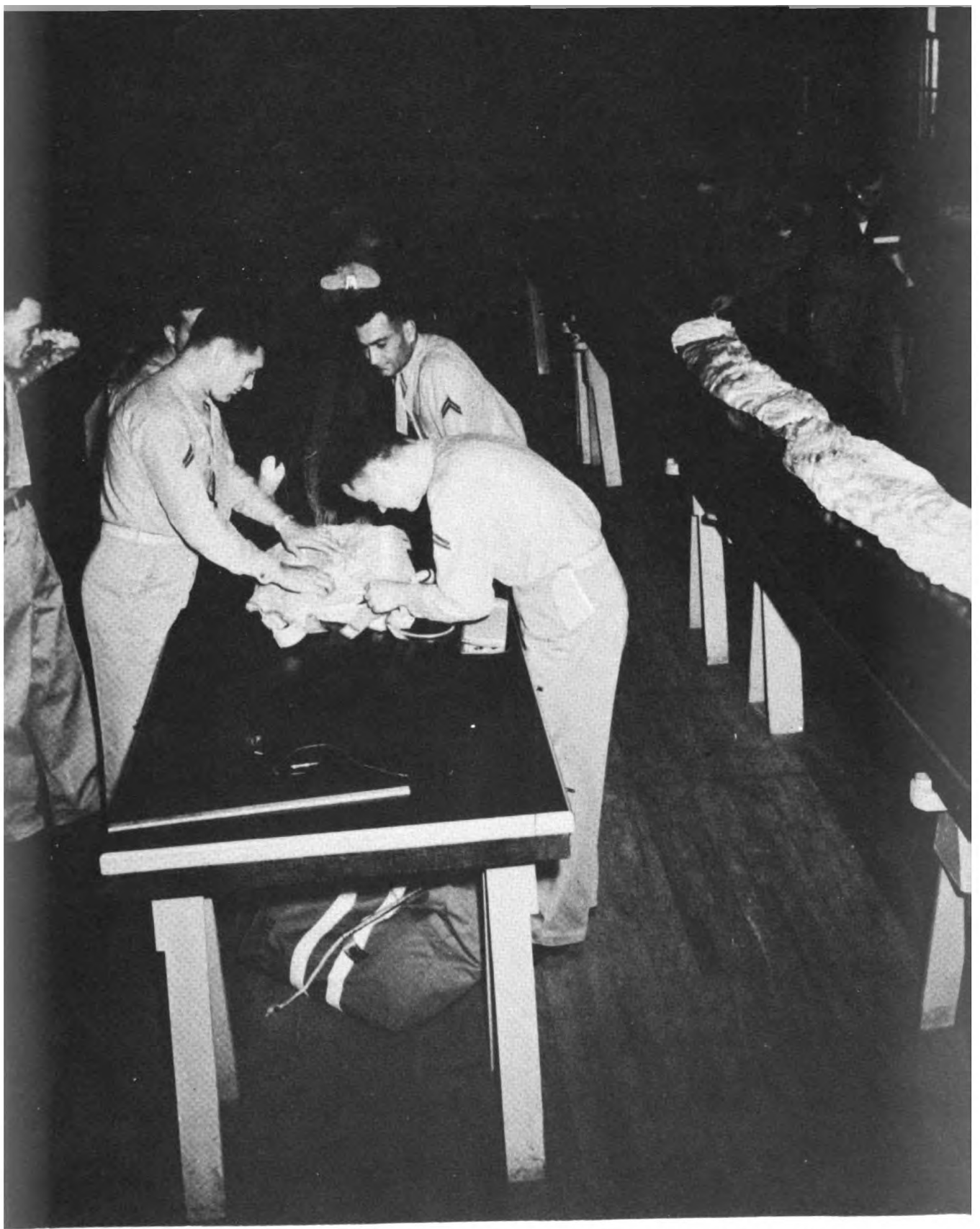


Parachute riggers, specialists in packing chutes, are members of every parachute battalion. These neophyte riggers will soon jump with the chutes they have packed themselves.

stubs its toe, muscles tighten up, become stiff little knots of flesh and the landing is hard, with a solid ker-thump, instead of with the former relaxed, gently rolling motion. What the recruit is about to learn through the exercises and the tumbling practice is so to control nerves and muscles that they can be relaxed at will. Every muscle in the body will coordinate to ensure a landing with easy grace, to roll over and over with the careless nonchalance of a tumbleweed, and to land quickly back on two feet—*rarin'* to go!

This tumbling business, too, is a tremendously important factor in the making of a good parachute soldier. After all, he is expected to be in fighting trim the instant he reaches the ground, and he is certainly going to be a total loss if, in landing, he sprains a wrist or an ankle, or breaks a bone. So he's going back to the days of the somersault, only this time he'll learn to do it backward, forward, sideways, any old way—just so he relaxes and rolls. It's the business of a circus acrobat to have this art of "relax and roll" down to perfection when he runs full tilt toward tables or chairs, dives head-foremost through the air, lands first on his hands, and then, quick as a flash, ducks his head and goes into a somersault that carries him neatly back onto his feet again. By the time the novice has won his silver wings as a parachutist, he'll be able to make that acrobat look like an amateur. To enhance the chances of doing so, several hours of the first afternoon in camp—and every afternoon for weeks thereafter—are spent in jumping from a platform eight or more feet above the ground. Coupled with this come more setting-up exercises, hand-over-hand climbing of ropes, and swinging on parallel bars, and then, all of a sudden, it's time for supper—and liberty afterward, if a fellow wants it.

For the most part, however, after a day as active as this one has been, the boys are content to loaf on their bunks, resting weary muscles, and exchanging views on the terrifically strenu-



Countless hours are spent by would-be paratroopers learning to pack a parachute.

ous service in which they have suddenly found themselves. Many of these lads are ex-football players, track men in college and high school, and are in the best of physical shape, but even they have found it pretty rough going. And they've been informed that what has just been experienced is nothing compared to that which is ahead. What manner of man is this, then, that Uncle Sam demands for duty in his paratroop battalions? Let us look at the requirements and see just what sort of physical, mental, and psychological examinations these boys had to pass before they could be admitted to that élite corps of sky-jumpers at Fort Benning, Georgia, or at one of the several Marine training schools.

## PARATROOP QUALIFICATIONS

“THE NATURE OF THE duty involved requires initiative, determination, agility, and strength, and a military and educational background that will qualify men for technical duties of a hazardous nature.” So said the original Marine Corps announcement of the formation of a parachute battalion.

If a lad thinks he has what it takes to be a paratrooper, if the stark courage, the cool nerve, the mental and physical fitness demanded by the job are inherent characteristics and part and parcel of his make-up, he may volunteer. He will *not* be inducted into the paratroops. Only volunteers are wanted in either the United States Army or Marine Corps paratroop battalions. Volunteers are now accepted by the Army directly from civilian life, but these men must report to a Replacement Center first, there to undergo the regulation 13 weeks of basic military training required of every soldier. In earlier, formative days applicants had to have a minimum of six months' service in the Army so that personal character and efficiency could readily be a matter of predetermined record. Then, as well as now, the applicant must be unmarried, between 18 and 32 years of age, and nothing less than superb physical condition will satisfy the Army doctors who conduct the examinations.

This doesn't mean he has to be big and heavy. On the contrary. Heavyweights fall too fast, so if a chap is more than six

feet two inches tall, or if he pushes the scales above 185 pounds, he should just forget the paratroop battalion. He'd better skip it, too, if he is less than five feet six inches in height. Naturally, weight standards for these ages and heights must conform to Army Regulations, which are: standard weight for a man 66 inches tall, 136 pounds; minimum, 121 pounds. For a height of 74 inches, standard weight is 168 pounds and the minimum allowable is 153.

It is obvious, therefore, that it isn't necessary to be a whopper to qualify physically. If of medium height, it is far more important that one should be well put together, that muscular and mental coordination be tops, that there be emotional balance, and as for nerves—well, they must be “cold-jugs.”

With a background of high school or college athletics, body muscles and the ability to coordinate them with quick thinking have probably been well developed, and this will be invaluable. But if any mementos of athletic prowess such as recurrent football knee or ankle injuries, old fractures with deformities, recurrent dislocations, painful arches, limitation of motion of any nature have lingered on, an application to join the parachute troops will be a waste of time, for the applicant as well as the examiners. They're keen, those medicos, and they have strict orders to reject all paratroop volunteers who are afflicted with any of the above defects.

They'll toss out, too, any applicant with indication of chronic disease, hernia, varicose veins, or recent venereal disease; and if the old ticker has anything wrong with it, it means disqualification. A paratrooper's eyes are likewise mighty important. The regulations state that distant vision uncorrected must be 20/20 in each eye.

In other words, any man who can pass the examinations for admission to membership in the United States Army Paratroop Corps can safely consider himself a perfect physical specimen.



The type of officer at the head of the paratroopers, Lieutenant Colonel Chester J. Hirschfelder, Commanding Officer of the Provisional Air-borne Task Force in the 1941 maneuvers.

Despite certain claims that Americans had "gone soft," and notwithstanding the rejection by some draft boards of a seemingly large number of men for physical defects, there are a lot of mighty good men in this nation. The first call for paratroop volunteers in October, 1940, literally swamped the Army with offers of service. Nearly ten times the number of men and officers applied that could be accommodated in a twelve months' period, with the limited facilities then available, but since then each new class of graduates has provided more trained instructors and, with constant additions to equipment, the expansion of the paratroop branch has gone forward on an ever-increasing scale.

Qualifications for the United States Marine Corps Paratroopers vary only slightly from those of the Army. The applicant must have completed his recruit training in the Marines, a preliminary period comparable to the Army's Replacement Center work; his minimum and maximum height restrictions are the same as the Army's, but he may weigh as little as 135 or as much as 190 pounds. Otherwise, there is little difference in basic requirements for the two services.

Why do young men want to become paratroopers? It's just possible that that "hazardous nature" business in the original Marine Corps pronouncement tipped the balance in the minds of many a youthful Leatherneck, or would-be Leatherneck—and it's very liable to continue to do so—for the entire 167-year history of the United States Marine Corps is profusely interwoven with brilliant-deed threads that spell "hazardous nature"—and, after all, one doesn't join the Gyrenes to play tiddlywinks!

Some volunteers have been attracted, and others will be, by the extra \$50.00 "jumping pay" each month, and this applies to both the Army and the Marines. But in this connection it must be remembered that while service in a parachute unit carries the extra pay for those who qualify as parachutists, there are



The parachutes after a jump, the men who jumped, the plane, and even the mascot.



Chin straps in place, chutes on backs, these two fledgling Marine paratroopers are about to take off in gray dawn for their first actual parachute jump.

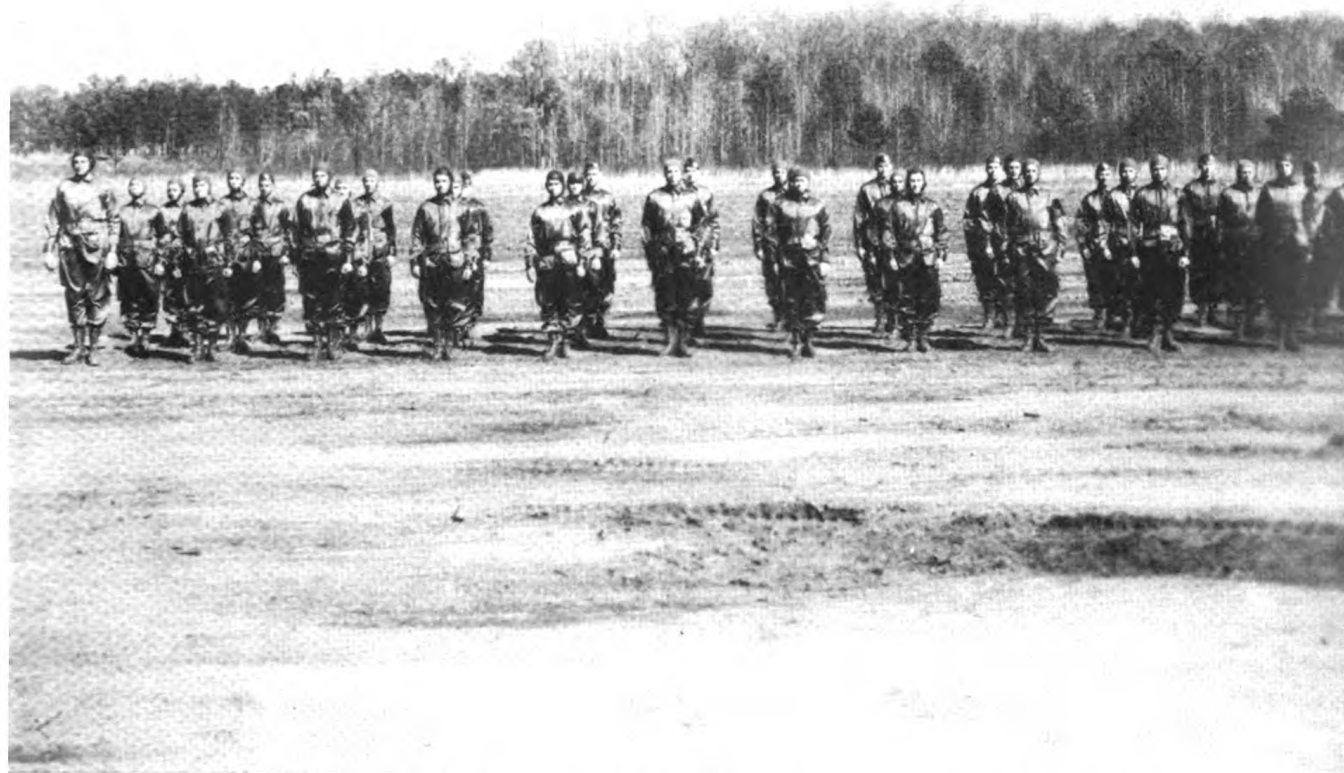


A Marine can always grin, even if he is facing the first parachute jump of his life.

many other duties in a jumping battalion for none of which is the \$50.00 "jumping pay" available. There must be a ground crew for parachutists, just as there is a ground crew for an aviation unit. This crew includes general and headquarters clerks, battalion headquarters administration, cooks and their assistants, radio electricians, motor dispatchers and mechanics, chauffeurs, motorcyclists, and other miscellaneous personnel, and applications may be filed for any branch, but only the lads who leap into the blue will receive the extra fifty each month.

No doubt the ever-present and truly American spirit of adventure has actuated and will continue to actuate many volunteer enlistments in our parachute corps, but the idea of adventure has wisely been played down. Throughout the rigorous training routine through which all sky troops must pass, one salient fact is inculcated—the parachute jumping and the resultant military activities on the ground, particularly in wartime, are highly hazardous—exactly as the Marine Corps order stated. Yes, a fellow has to be a he-man in every sense of the word to gain admittance to the extremely select parachute battalions of either the Army or the Marine Corps.

Although as recently as the fall of 1940 the United States Army could not boast of a single paratrooper, today we have several thousand. Just how many is a military secret, as are many of the features of the actual training of these newfangled fighters, but on July 12, 1941, just eight months after the formation of the first parachute battalion at Fort Benning, the War Department stated that "the increase to 1100 in the number of soldiers training for duty as Parachute Troops was announced today." More recently, advices were given out that our paratroopers are now in England in considerable force. That 1100 isn't many compared to the estimated German army of 50,000 parachute soldiers, nor Russia's approximate 100,000,



Some of Uncle Sam's newest parachute troops stand at rigid attention for final inspection before they make their initial parachute jump.

but, as with many other military factors now in progress, the United States plans eventually to top them all.

And yet, despite the numbers of the German, Russian, and Japanese sky troops and their successes in this war, it was the Americans who were recognized the world over after the last war for parachute stunts. Who does not remember the thrills attendant upon the barnstorming performances at state and county fairs when double and even triple parachute descents were made by men and women endowed with more than their share of nerve? As early as 1928 mass jumps of as many as ten men were conducted, without official orders, from a plane. In 1929, the United States Army parachuted a machine-gun crew, complete with gun and ammunition, at Kelly Field, Texas. Russian officers witnessed some of these early demonstrations, became inordinately interested, and went to work on the idea from a more intensive military viewpoint. The Germans picked it up, progressed even further, and, as has frequently been the case in other developments, they have widely received credit for an idea that originated elsewhere. But we did nothing—then. It has been said, however, that the Germans dropped two men behind Russian lines in the other war with a mission to blow up part of a railroad. It is also claimed that General “Billy” Mitchell, who has been proved so very right in many of his early theories of fighting aircraft, conceived a gigantic parachute attack of 20,000 Allied troops behind the German lines of 1917-18. French troops were actually landed in Morocco via parachute in 1925, and French military leaders, seeing the advantages of such troops, had two active parachute troop units by 1937. Be that as it may, Uncle Sam has been rapidly making up for lost time during the past two years. The chances are strong that the day is not far off when we shall read of American lads dropping from the skies by the thousands behind enemy lines, where they will be a force to be feared.

## THE BUSINESS OF GROUND-JUMPING

IF THE PHYSICAL PERfection necessarily displayed to pass muster with the examining physicians of the paratroops left the recruit feeling a bit cocky, he'll have that nonsense knocked out of his system in blitz time soon after reporting to Fort Benning or to one of the Marine Corps instruction centers. The physical training program, which makes a college football scrimmage seem like a pink tea by comparison, lasts for the first six weeks, and every minute phase of it has been carefully planned by experts from the desire to develop every part of the human body to the point where unnatural strain will be as close to normal use of nerves, muscles, and ligaments as possible. There's far more than meets the casual eye in the daily routine of calisthenics, mile-long runs, somersaults, and so on.

Take jumping from the six-foot platform, for example. Anyone in reasonably good health can jump to the ground from a simple height of six feet without being in serious danger, but the mere feat of leaving a platform and landing on a mat a half-dozen feet below is far from the whole story. This jump is the kindergarten course in acquiring the art of leaping from an airplane with a parachute and making a successful contact with the ground. Its a-b-c technique is so vital that it must be mastered before the future paratrooper can be permitted to continue with his training.

In jumping from any height, instructors impress the fact that one must land on the balls of the feet, never on the toes or flat on the heels. The spring of the legs is allowed to absorb the shock naturally, and the leather boots, especially designed for Army parachute troops, help materially in the whole process. Save for a higher cut and a hard toe, this boot is similar in appearance to the standard service shoe, except that it has rubber heels and a second set of taps, also rubber, to assist in minimizing the thump of contact. In the development of this paratrooper's shoe several auxiliary features such as special ankle braces and sponge rubber innersoles were thoroughly tested, but were discarded as not only superfluous, but as being more likely to cause leg injury than shoes without them.

These tests were conducted under the supervision of the Infantry Board at Fort Benning, Georgia, and motion pictures, including slow motion, were taken of landings from planes. Not long ago Lieutenant William J. Tobin and Captain J. T. Vandover, of the Station Hospital at Fort Benning, reported to the American Medical Association through these movies on 29,774 jumps. Naturally, in that number of landings by paratroopers there were some injuries, but at this stage of the training program it is heartening to know that there were relatively very few, and even fewer serious ones. Out of a recent compilation of 4500 practice jumps from planes at Fort Benning, there was but one fatality. The business of being a soldier is dangerous at all times, but if the rules established by long practice are thoroughly learned, and if a man has the "know-how" firmly fixed in his mind, he will reduce the risks which are present in any branch of service. That's why the hundreds of practice jumps from platforms are so very important, for the principle involved in effecting a perfect two-point landing on the balls of the feet from a six-foot platform is basically the same as when parachuting from a plane hundreds of feet in the air.



A blue-jacket studies a parachute. Note manual rip cord handle above sailor's left hand and part of release cable below same hand.

The motion picture report, when studied by the doctors, showed almost exactly what mistake the jumper made in landing. The film proved to be an excellent lesson in what not to do. Landings at an angle or tipped sideways brought too much strain on one leg and sometimes resulted in sprained knees and ankles, or even fractures of the latter. Backward landings when the chute was far to the rear—due, possibly, to improper or no manipulation of the shroud lines in descending—pulled the man down backward, caused injuries to spine, skull, and pelvis. If one leg became bent too far under in landing, there was a risk of muscle strains, as well as the more serious danger of a sprained ankle, knee, or hip. When a man landed with arms stretched out in front of him, there was a tendency to break wrists or elbows as he fell forward. All these are not pleasant possibilities to think about, but early in the game, while practice jumping from a platform is the order of the day, is the time to know about them, the time to learn how to guard against them.

The correct way to land, from any jump, whether in the Paratroop Corps or in civilian life, is to assume about the posture of a monkey standing up. Flex the knees and hips a little; keep the body upright, not too tense, not too relaxed; land with equal force on the balls of the feet, and *never, never* land on the heels first.

Indicative of the great importance of learning how to land, the jumping practice continues day after day, until finally the recruits graduate to the higher platform, which increases the shock of landing but which doesn't alter the technique in the least. The men still land on a mat, but after a while that is removed, leaving only the hard, sun-baked soil of Georgia, or the equally non-resilient ground at a Marine Corps training school. It has been said that a paratrooper in training jumps so many times he begins to think he is a distant cousin to

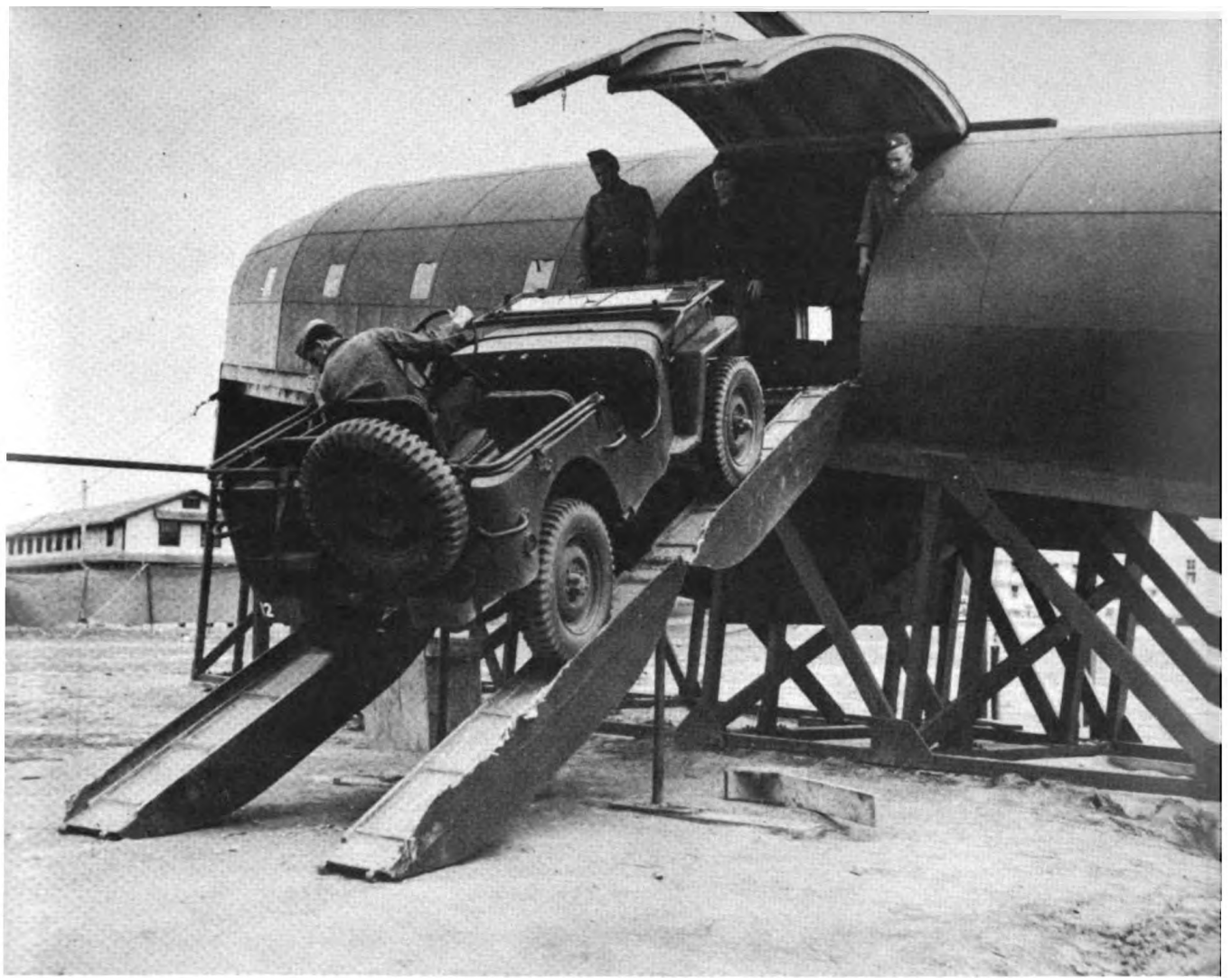


Air-borne troops, who work in close conjunction with paratroopers, practice loading their equipment in a dummy plane, called a "mock-up."

a grasshopper or a kangaroo, and he wonders if, in the life span of either the insect or the animal, there are as many jumps as he has made.

To make ground jumping more realistic and to familiarize the paratrooper with what it is like to leap from a plane, both the Army and the Marines have constructed a dummy plane, raised on stilts. It represents the body or passenger-carrying part of the transport ship with a large door—called the “jumping port” by Marines—in the tail of the structure. A dozen men at a time climb into this make-believe plane. They have their regular parachutes strapped to their backs, they carry their reserve chutes hung on their chests, and they seat themselves on the floor of the “plane,” just as they will do when they go through the real thing. As the orders are shouted by officers who act as jumpmasters, the men scramble to their feet, form in a single line, and await the order to jump. When it comes, the leader leaps out and down the several feet to the ground, but he doesn't try to roll this time, for naturally the parachute on his back hasn't opened in so short a distance. This device accustoms the paratrooper to the carrying of two chutes—the reserve and the jumping chute; to movements with them in the more restricted quarters of a transport plane; to the orders necessary to the establishing of that “line of departure” in the clouds. It's all a bit more exciting than just straight jumps from a platform, and there's an anticipatory thrill about the dummy plane that brings on considerable discussion and argument in barracks of an evening.

But there's still more to learn about jumping. So far this has all been quite elementary. So far, every jump has been made from a stationary platform, but every jump executed from a plane will be from a moving platform, the speeding plane. Furthermore, there will be forward, backward, or sideways motion when the parachute and its human cargo hit the



Jeep drivers of air-borne troops must be good. These soldiers who are cousins of paratroopers in action, practice loading a jeep.

ground. Landing by parachute has been likened to jumping off the roof of an automobile traveling at fifteen miles an hour, but that statement is no more correct than saying that being tackled in a football game is like running into a brick wall. Some tacklers hit harder than others; some tacklers throw the runner with terrific force, while others merely cause him to lose his footing and tumble in relatively easy fashion. So it is with parachute landings. Some are as gentle as the stop of a slow-moving elevator, others resemble being tossed out of a second-story window; but with wind and oscillation of the parachute to contend with, all landings are sure to have more than just a downward motion.

To offset the dangers of being pulled sideways, backward, or flat on the face, the recruit learns that the instant his feet touch the ground he must pivot or swing his body in the general direction of the wind. This places him in a sort of squatting-rotating position from which it is easy to follow through with a back somersault. He simply eases down onto his buttocks, and with a continuous, rolling motion toward the parachute, which by now would be collapsing on the ground if the wind was light, or which might be brutally pulling its occupant over rough terrain if the wind was heavy, he somersaults backward and onto his feet. The primary purpose of this procedure is to relax the shroud lines tautened by the wind so that the canopy will collapse before the man has been injured by being dragged.

In order to simulate wind conditions as closely as possible, a huge motorized wind machine is later brought onto the field. The training paratrooper is strapped into his parachute harness, told to lie flat on the ground, and the canopy is then filled with a terrific blast from the wind machine. The parachute immediately starts moving off across the ground, dragging the helpless soldier along, willy-nilly. The truck on which the wind

machine is mounted follows, and this strange parade continues while the future paratrooper tries to get back on his feet and gain on the tightly stretched shroud lines. If he has learned his lessons well, he will be able to stem his most ungainly and uncomfortable advance in a few seconds. Another method used in this phase of the training consists in tying the shroud lines to the back end of a truck. There is no parachute canopy or wind machine involved in this maneuver, but the ultimate result is exactly the same, and if the trainee would avoid bumps and bruises, he will quickly go into his backward somersault and scramble to an upright position as fast as possible.

Doubtless it sometimes seems to the soldier who is being put through this toughest of all training courses that the men who devised it must have sat up nights in order to conceive all these fiendish ways and means to present a man with sore muscles and his full quota of black-and-blue spots. If such have been his thoughts, they will probably become a certainty when for the first time he faces "Ryder's Death Ride," as it has grimly been termed by the men themselves. This contrivance is the brain child of Major William T. Ryder, Assistant Commandant of the Academic Section, Parachute School, Air-borne Command, Fort Benning, Georgia. Major Ryder, besides being responsible for setting up this toughest of all training courses, is one of the Army's pioneer parachutists, and by the time the recruit has progressed this far he is probably willing to agree that to date the Major has set a pretty strenuous pace, but, in the vernacular, "he ain't seen nothing yet." Ryder's Death Ride is a monorail track suspended some twenty feet in the air by a series of wooden, arched supports. The ride starts from a 10-foot platform reached by stairs and ends anywhere from 15 to 30 feet along the elevated monorail, whenever the command, "Let go!" is given.

The prospective passenger stands on the platform, with a silly grin on his face, because down below, ranged along both sides of the structure that holds the monorail, are about twenty of his buddies. They have all gone through the course together so far, but the first man in the platoon to try the "Death Ride" is somewhat on the spot. As two instructors help him climb into a typical parachute harness, minus the chute, wisecracks and advice, good and bad, come up from a score of expectant watchers, each of whom will soon have several chances to prove his mettle by trying out the Death Ride.

The risers, or shrouds, extending upward from the harness are not connected with a parachute, but are shorter than the normal supporting lines and are fastened to a crossbar which is in turn suspended from the wheel which travels along the monorail. An instructor gives the somewhat nervous soldier a shove from behind, the suspended harness with its human cargo rolls merrily down the track with the would-be paratrooper swinging free a dozen feet above the ground. At the command, "Let go!" a release cord is pulled by an instructor, the trainee drops to his feet on the mats below, and goes into the tumbler's roll. The longer the ride lasts, the greater the momentum will be, as the monorail is built on a downgrade, and therefore the faster the forward motion when the soldiers' feet hit the ground. It is humanly instinctive to fight that forward thrust by trying to keep one's feet, but the impulse usually is beaten down and, like a good paratrooper, the trainee pivots into the squatting-rotating position and manages very creditable backward somersault rolls which, even if they don't always land him back on his feet, do bring hearty applause from the gang and commendation from the instructors.

By now the recruits are no longer freshmen in this college of hard knocks. They're getting hard and tough, and as they



“Ryder’s Death Ride” doesn’t look too tough, but the performance is given by each man in front of the most critical of audiences—his pals in service.

look back to their first day in training they can see real improvement in what was even then excellent physical condition. They realize, too, the reason for the stress laid on practice jumping: that more and constant practice in the art of landing safely is ultimately going to mean a great deal in insuring life, limb, and pursuit of the enemy.





*Above and left: Not all who wear parachutes are jumpers by choice and training. While planes are warming up, pilots and co-pilots don the seat type chutes, which are manually operated, to be ready—just in case.*



"Gee! Maybe it would be fun to jump, after all!"

## HOW TO PILOT A PARACHUTE

DESPITE THE PASSAGE OF “freshman” days, and notwithstanding the splendid progress made to date, there is still much to learn—the biggest hurdles are yet to come. From here on come the tests, both physical and psychological, which may make or break a potential paratrooper. The records show that about 22 out of each 150 men who enter the Fort Benning paratroop training school “wash out” even before the first plane jump is made. By now our training platoon has developed a fine *esprit de corps*, a fighting spirit, and a high morale. In its own estimation it will be the best class ever graduated—and even though every preceding class has felt that way too, it is the right spirit and the way one should feel. Nevertheless, the shock test is still ahead, and it has seldom failed to weed out some with weaker determinations and wills. Then there are the tower jumps where a few develop emotional instability and decide that the “blisterfeet” (infantrymen) or the “gasoline cowboys” (men of the Armored Divisions) lead a better life after all.

These failures to carry on are handled quietly, diplomatically, and in kindly fashion by the officers in charge. When a man flunks out, there’s no fuss or feathers, just an unobtrusive transfer to another branch of service and nothing is said about it. The officers in charge of training are an understanding lot, for they have all been through this same tough mill, not once,

but several times. Many of them pioneered in the first experimental parachute platoon organized in the fall of 1940, and did their first tower jumping in Hightstown, New Jersey, before the Fort Benning apparatus was installed.

Officers in the Parachute Battalion are all volunteers, are all on the younger side, like the enlisted men, and they're as hard, as tough, as willing and ready as the men of their commands. Majors must not be over 40 at the time of induction; the maximum for captains and lieutenants is 35.

Brigadier General William C. Lee, Commanding, Headquarters Air-borne Command, Army Ground Forces, at Fort Bragg, North Carolina, is typical of the men who serve with and under him. In direct charge of the original and then miniature parachute project from its beginning, General (then Lieutenant Colonel) Lee served initially in the Office of the Chief of Infantry while basic plans and arrangements were being made. After the first test unit of October, 1940, had been expanded into the 501st Parachute Battalion under Lieutenant Colonel (then Major) William M. Miley, and after activation of the 502nd Battalion in July, 1941, the 503rd Battalion was announced by the War Department in August of the same year and "The Jumping Colonel," as General Lee was then referred to, was given command of that Parachute Group, containing approximately 1500 officers and men.

General Lee is a graduate of the University of North Carolina, served in the last war as second lieutenant and later as first lieutenant in the 323rd Infantry, and in the Meuse-Argonne offensive he was a company commander. Since that other war General Lee has been graduated from the Company Officers' Course, the Advance Course, and the Tank Course of the Infantry School; from the Command and General Staff School at Fort Leavenworth, Kansas, and from the French Tank School. He took over command of the Parachute Group



Learning to manipulate shroud lines, the steering wheels of a parachute.

on April 1, 1941, but soon thereafter contracted pneumonia, which sent him to the hospital. Three days after he was released he set out to jump from a plane and no amount of persuasion from his fellow officers could deter him or make him postpone the flight until he had more fully regained his strength. "The Jumping Colonel" borrowed a jumping outfit from a sergeant and, with the sergeant's stripes on the sleeves to avoid attention, he made a training jump. With his background, his experience, and his characteristics, General Lee, who will probably always be familiarly known as "The Jumping Colonel," makes an ideal commanding officer for the type of officers and men to be found in Uncle Sam's Parachute Battalions.

Whether the training platoon has realized it or not, the course thus far has been as much psychological as physical. The pride in accomplishments, in being in the paratroop branch of the service, in being a member of a truly select group of hard-hitting, hard-fighting, hard-to-stop men is all a part of the picture, just as are muscular development and strengthening. Both of these build-ups have been strategically devised, planned, and carried out with one purpose in mind—constantly to prepare each neophyte parachutist for the next step in his education as a paratroop fighter.

Next comes the prelude to actual jumping from a plane. There are several steps in this preliminary work, even before it is time for the tower jumps. The first of these is to get the "feel" of the parachute harness to a far greater extent than was possible in Ryder's Death Ride. To do this, a parachute has been equipped with ribs, like an umbrella, and has been suspended high up near the rafters of a lofty building. The chute is fully equipped with shrouds and harness and can be quickly raised and lowered by means of block and tackle. Not only does this contrivance accustom a man to his parachute harness, but also it teaches him the principles of "side-slipping,"



All training paratroopers wear two chutes, like this. The one on the back is operated by the static line, folded across the middle of the back chute. The one in front is the reserve chute, is manually operated, and is not carried in actual battle.

or how to guide the parachute, just as one would guide an automobile or any other medium of transportation.

The harness is made of soft, pliable webbing specially woven from strong linen yarns to provide suitable body and to maintain its shape, while at the same time it has sufficient tensile strength to offer a high degree of safety under severe loading conditions. It is designed to distribute the shock of opening of the parachute to the portions of the body best suited to absorb it. Consequently, it will be found that the natural position in the harness is similar to that of sitting in a swing. The first move toward getting into a parachute harness is something like shouldering a packsack which is equipped with shoulder straps. Each arm is thrust through a loop which rests on top of the shoulder and circles down over the chest and back, to meet under the arm at just about the location of the lower ribs. The two chest straps are drawn toward each other and snapped together with stout metal fasteners.

From the lower ribs on one side of the body, where the webbing loop comes together under the arms, another continuous strip of webbing continues down to the hip, loops across and under the buttocks, and back up the other side of the body, where it is securely sewed to the bottom of the loop under the other arm. This strip is comparable to the seat in a swing, and it is on this webbing under the buttocks that the parachutist sits while descending. There is also a broad strip which passes around the small of the back, is sewed to the shoulder loops, and forms a sort of a back to the swing seat. Leading off from the center of the seat loop are two more strips of webbing which are drawn between the legs from back to front, brought up over the thigh of each leg and snapped to fastening rings in the harness which extends down from each shoulder loop. Care must be taken that the harness fits snugly,



Here's a good chance to see what the static line looks like; also the boots. The static line is that 13-foot piece of stout webbing folded upon itself across the back of each parachute.



for straps that are too loose can inflict biting cuts, and adjusters are provided to fit the harness to the man.

When first strapped into a parachute harness, a soldier feels pretty much as though he had donned a strait-jacket, but it doesn't take long to get used to the snugness. If the men find they are too far forward for greatest comfort, they can improve their position by placing the thumbs in the seat strap beside each leg and pressing downward, thereby pushing the body upward and back into the harness. If too far back in the harness, a movement in the other direction is equally simple.

The instructors explain that by means of the block and tackle a man and the parachute, already opened by means of permanent, umbrella-like ribs, will be hoisted fifteen or twenty feet into the air. In that position the paratrooper will be taught how to manipulate the shroud lines in order to steer the chute in any direction, how to pull his body straight up into the shrouds just at the instant of landing in order to break the fall, and how to extricate himself completely from the harness before striking the ground. The latter is particularly important in case the chutist ever descends into water, for unless the parachute is completely released before the jumper hits the water, the canopy may collapse on the surface just over his head and prevent escape from beneath its folds. Furthermore, being impeded by heavy shoes and clothing, it is neither safe nor practical to wait until dunked before trying to get out of the harness. A water jump requires the parachutist to drop free from his harness while still ten or fifteen feet above the water.

The method of steering a parachute is relatively simple. It is done by reaching up as high as possible on the shroud lines on one side and literally trying to chin oneself. This extra pull draws that side of the chute down and spills wind out of the other side, so that the chute actually slips sideways. If it is

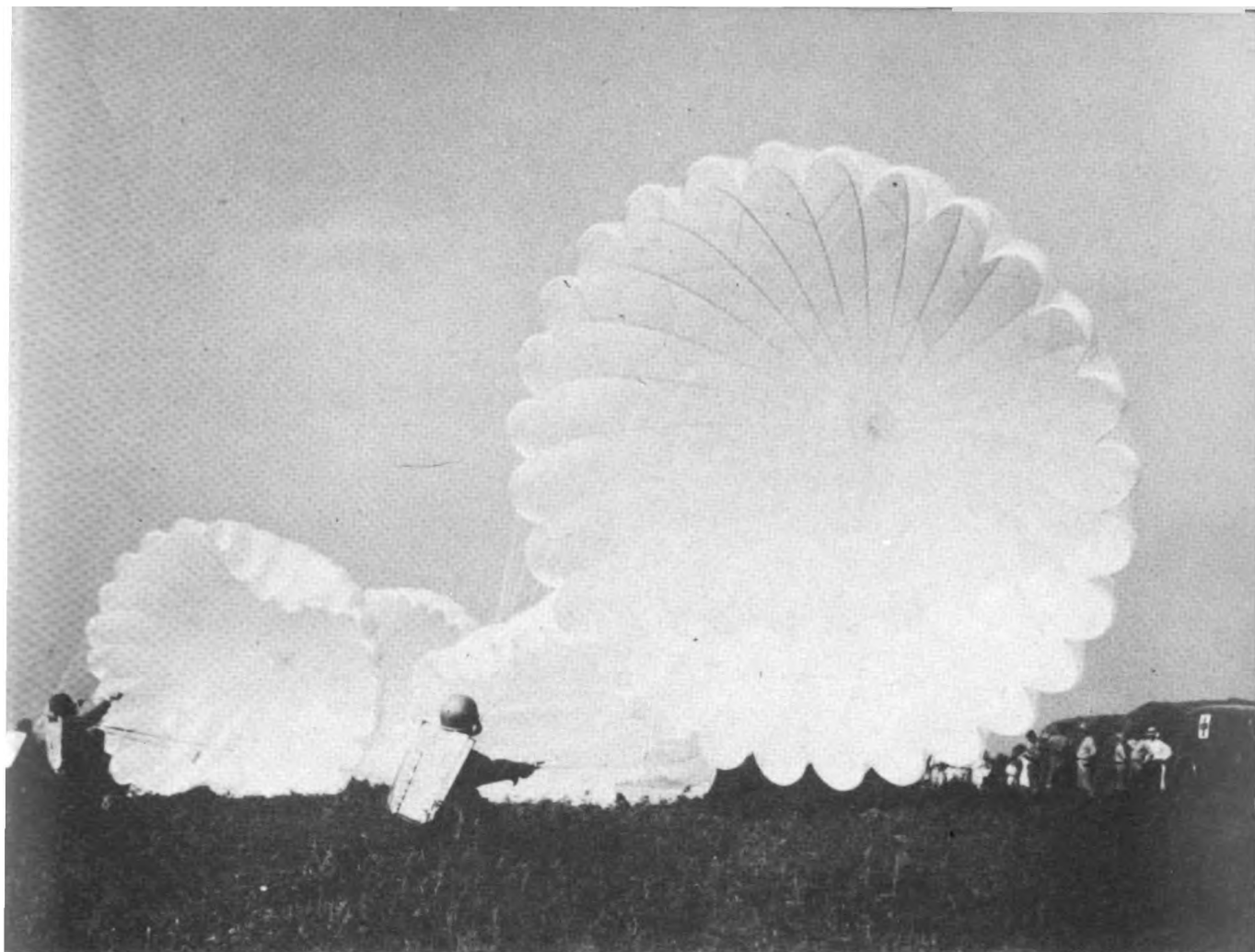


Here is the static cable, to which are snapped the terminals of the static lines. As each man jumps, the canvas webbing folded on the back of his pack unfolds its 13 feet, after which the webbed strap yanks open the container, permitting the chute to open instantly. Cable running over the soldier's shoulder contains the wire running to the hand-released rip cord, which may be used if necessary, or if a free fall is desirable.

desirable to go to the right, the chinning process is done on the right-hand shrouds; if to the left, the chutist starts climbing up the left-hand lines. The same tactics apply when slipping to the front or the rear, but there is one thing always to be careful of in this slipping maneuver—never slip too much air out of the chute, especially when nearing the ground. If too much wind is spilled too rapidly, the chute may lose its full-blossomed form altogether and collapse sideways—which means the passenger would immediately start descending in an exceedingly rapid and unsafe manner!

In every parachute descent the jumper must always remember to look down, not up. It's all right to take an occasional peek at the canopy to be sure it is properly inflated, or to see that it doesn't spill too much wind when side-slipping, but the rest of the time there must be no stargazing. Keeping the eyes on the ground, watching objects that are good landmarks, gives the paratrooper an indication of how fast he is drifting with the wind and in what direction. He has been ordered to land as near as possible to a definite, predetermined spot on the landscape, and only by keeping constant watch of the ground below and doing his best to direct his chute can he accomplish this. Furthermore, supplies, arms and ammunition, and other soldiers have also been marked for a special, probably strategic rendezvous, and badly scattered troops may defeat the entire operation.

Manipulating a parachute in a husky wind by means of the shrouds is not an easy task. The Division of Fire Control of the Forest Service, United States Department of Agriculture, which provided both the Army and Marine Corps with early and helpful advice based on experiments with parachuting forest-fire fighters from planes, came to the conclusion that "delivery of skilled and well-trained parachute-jumping fire fighters can be done safely in rough, timbered terrain in winds



After he is on the ground, the paratrooper must manipulate the shroud lines in order to deflate the parachute as quickly as possible.

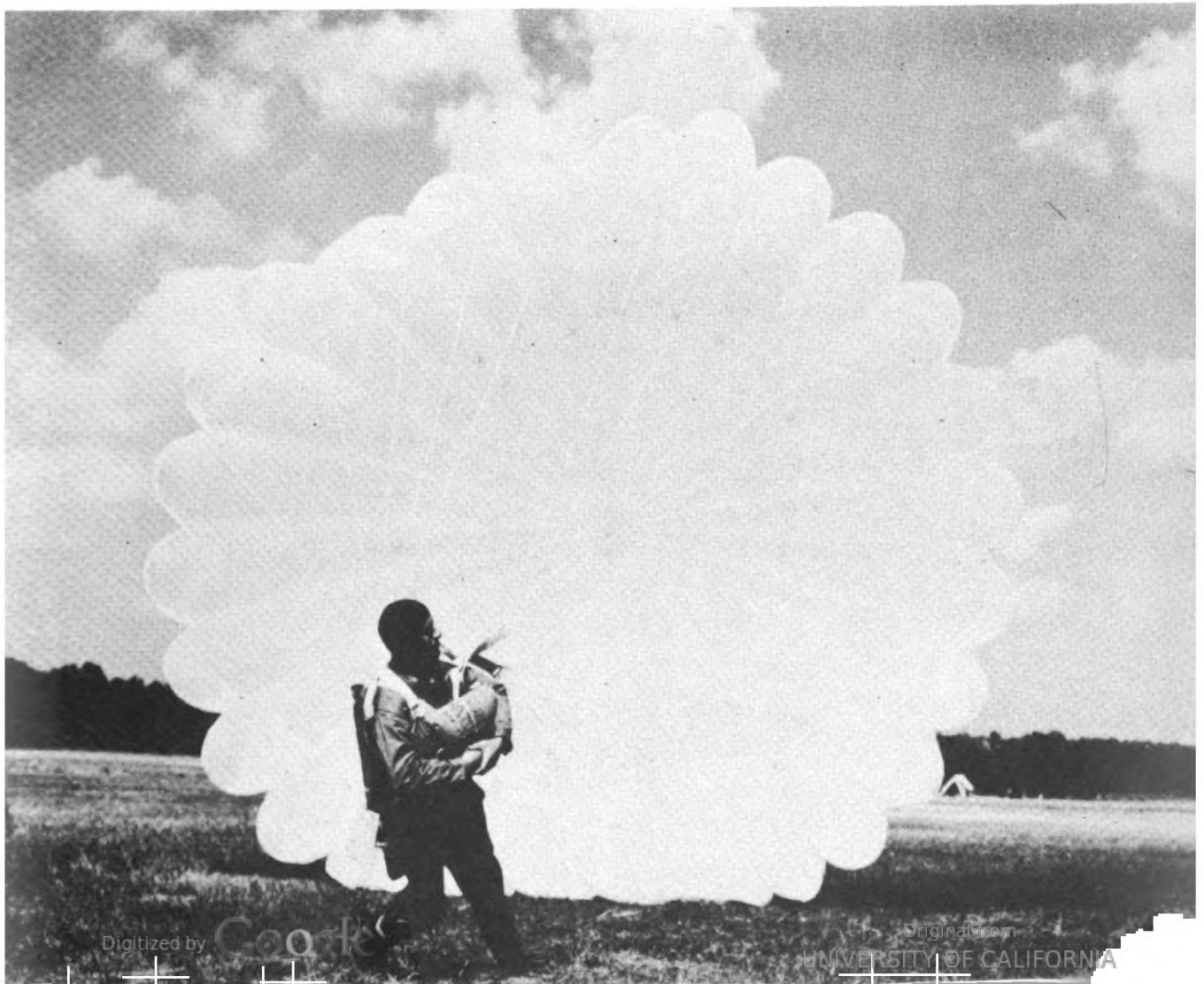
up to 30 miles per hour." But managing a parachute in a wind of that velocity calls for extreme skill and all the stamina and muscle available. The recruits will not be asked to make training jumps in high winds. In fact, the first jumps will be arranged to take place on as breezeless a day as can be chosen, probably early in the morning when the air is almost motionless, but in actual fighting service an American paratrooper may, and probably will, meet conditions that will make the experiences of our intrepid aerial forest-fire fighters sound like simple bedtime stories.

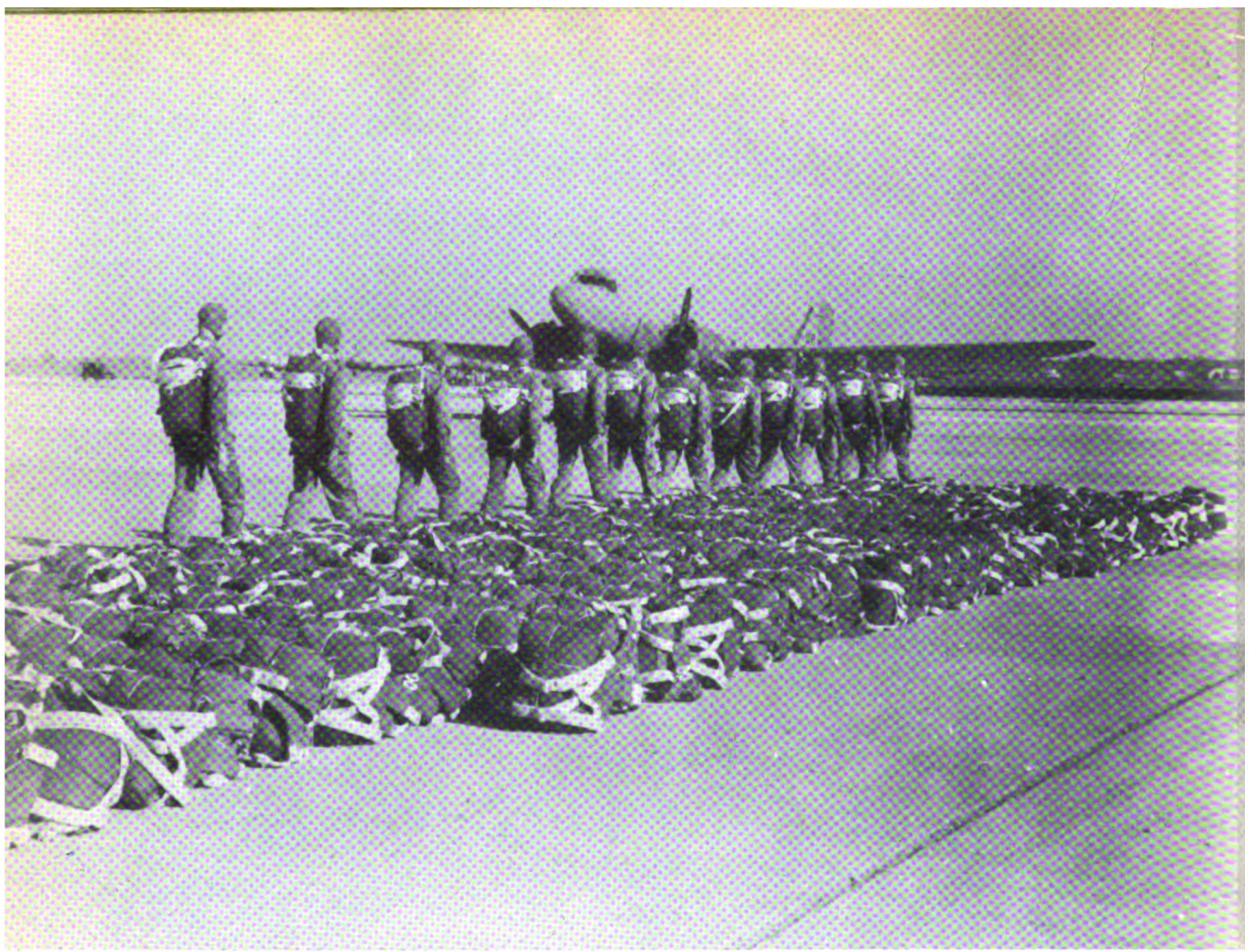
To teach the men how to land properly, the captive parachute is hauled to the high roof of the building and allowed to drop back to the ground. Naturally it doesn't drop very fast nor very far, but those practice drops teach the boys how to pull themselves straight up on the shroud lines on either side just before a landing. In this maneuver, proper timing is essential. The paratrooper watches the ground coming up at him, trying to gauge the speed of the fall. At just the right moment the side shrouds are grasped firmly in each hand, as high up as he can reach. He pulls down on the shrouds as hard as possible. This lifts the body in much the same way as one does when chinning oneself on a horizontal bar. However, unlike the horizontal bar, the parachute is not solidly fixed, so the effort tends to draw the parachute downward. In so doing, the pressure of the air under the canopy of the chute is increased, and as only a certain amount of this imprisoned air can escape through the vent in the peak of the canopy during a given period of time, the downward fall has been checked. In other words, the brakes have been applied as much as possible just before the chutist hits the ground.

When this procedure has been mastered, the shock of striking the earth has been considerably lessened. Naturally, one does not keep hold of the shrouds after the feet reach the

ground. When landing with a real parachute in an actual jump, the paratrooper "chins" himself on the shrouds as described, but he lets go the instant he hits and goes into his circus tumbler's roll—always in the direction of the now collapsing parachute.

Safely down, the next job is to deflate the parachute before the wind gets in its dirty work.





Parachutes, parachutes, and more parachutes. This is why, besides the Japs, there is a shortage of silk—and it also accounts for much of our Nylon.

## MEDICAL CARE AND EMERGENCY RATIONS

WHILE IT IS EVIDENT BY now that the day of the paratroop soldier in training is indeed a busy one, not all his time is taken up in running, jumping, chinning himself, and in various other ways making a physical superman of himself. There are classroom lectures on firearms, on their history from the time the Chinese first used gunpowder down to the present manifold list of guns and cannon. Instruction in first aid is a requirement for every man, and extended work in medical care, bandaging, emergency dressings, splints, and hypodermic injections is given to some of the men who will serve both as fighters and as members of the First Aid Corps.

Some time ago the Army began signing up jumping doctors and other personnel in the medical department and attaching them to each of the new Parachute Battalions as fast as the battalions were formed. The functions of this medical detachment are to provide dispensary medical service to the battalion in camp and to care for the wounded and injured in combat. Since the paratroopers are fighters whose business of war invariably takes them far in advance of the bulk of the army, then must be self-supporting from every angle until such time as relief reaches them.

This means that in both maneuvers and in actual battle the

medicos and their assistants will jump from high- or low-flying planes along with the parachute troops. Once on the ground, they will set up first-aid stations in as secluded and safe a spot as possible in or near the combat area, where they will care for casualties until it is possible to evacuate them to hospitals. To do this, special medical equipment has been devised which can safely be dropped by parachutes during or immediately after the moments when the personnel leaves the plane. Included in the equipment are bandages, dressings, medicines, splints, blankets, surgical instruments, litters, sterilizers, and other items necessary for the proper care of wounded men in the field. A parachuting member of the Medical Corps can, and sometimes does, carry many of the smaller items in a small pack strapped to his chest.

Important as medicine and medical care may be to the paratrooper, good food, and plenty of it, is the fuel which must be stoked into his human boiler to keep him going. He will meet with some interesting new forms of concentrated and dehydrated food in his adventurous days to come. There is nothing particularly new in the use of dried foods in war in order to save weight, and to make it possible to keep the foods for longer periods. American Indians and other primitive men were often dependent on a sort of pemmican biscuit, and on such items as parched corn. But with the onward march of science the methods of preserving many kinds of foods have improved from war to war until today our armies eat dehydrated foods of nearly every character, and all of them compare favorably in taste with the fresh product from the tree, the vine, or the butcher shop. Research laboratories have brought forth a continuous parade of these new forms of food in concentrated and dehydrated form by precooking, quick-freezing, and by various other methods. Seeming miracles have been performed in the food line, such as packing four gallons of milk into a

three-pound paper sack, and in this war of vast distances where transportation plays such a vital part and where every cubic foot of packing space means so much, the dried and dehydrated processes are paying handsomely for the long, tedious hours of research and experimentation which have been invested. Concerning food, Colonel Paul Logan, Assistant Chief of the Subsistence Division of the Quartermaster Corps, has said: "In the business of fighting a war, food is not second to any other item. Today, in this war, the most precious thing in all the world is forty cubic feet of space commonly known as a ship's ton. With unlimited tonnage we would long since have had more supplies and a greater fighting force overseas. If we can use each one of the cubic feet to best advantage, we have contributed tremendously toward the war effort." Indicative of the importance of gaining this advantage are the British purchases of canned potatoes. A ship's ton of canned, boiled potatoes weighs 920 pounds; the same ship's ton of dehydrated potatoes, reconstituted, which means prepared for table by the addition of water and cooking, weighs 3980 pounds. Figuring the potato problem another way, 27 million pounds of potatoes can be reduced to a shipping weight of three million pounds, which is equivalent to conserving two large cargo vessels for the shipment of other commodities. Another example is that of dried eggs, one pound of which represents the nutritive portions of three dozen eggs, as taken directly from the hens. Nor are these new and entirely successful dehydrated foods limited in their variety. Today our far-flung troops may eat soups, oysters, meats, pumpkins, and many other forms of nourishment, or drink lemonade, all from concentrates which have taken up little storage space in the course of their transportation to the ends of the earth.

Not only is the undergraduate paratrooper fed plenty of the best food available, but also he is given instruction in the preparation and use of his own emergency rations so that should

he find himself isolated for hours, or even days, from his fellows, he can be entirely self-sufficient as to food and can maintain his strength and health. The Army ration "K," originally termed "the parachute ration," contains bread, meat, beverage, and dessert or confection, all in concentrated form and so wrapped as to be edible even after exposure to arctic cold, jungle heat, water, vermin, poison gas, or other deteriorating influences.

The whole package weighs but two pounds and comprises enough of the several concentrates for three good and sufficient meals. Three such packages, therefore, would last a man for three days and yet not burden him with weight, of which he will already have all he can carry. There are some 3500 calories in each day's supply of food, which is about 50 per cent more than the number of calories the ordinary person in a more sedentary life has need for. The paratrooper's emergency breakfast ration is composed of four ounces of pemmican biscuit, which is a sort of cracker comprised of whole wheat, soya, frozen eggs, white wheat, skimmed milk, whole oat flour, sugar, molasses, shortening, salt, cinnamon, and ammonium bicarbonate. But, compact nourishment as that may be, there's still more to breakfast in the field with shells screaming and supply lines cut, or when sneaking behind the enemy lines on a sabotage detail, or perhaps when struggling through jungles.

There are also two ounces of modified malted milk, a three-ounce can of veal loaf, two soluble coffee tablets, two cubes of sugar, and even a piece of chewing gum on which to flex the jaws and cogitate on how best to proceed in the emergency. Wherever he may be, when noonday arrives, the lone but self-sufficient soldier will find he is in for a feast of eight pieces of pemmican biscuit, a tube of bouillon extract, a package of fifteen dextrose tablets, a tin of ham spread, and one more piece of gum, perhaps to help him continue to cogitate. Be

that as it may, when suppertime comes and the pangs of hunger are once more gnawing, he will still find left in his original two-pound daily package, chocolate, sucrose, which is really ordinary sugar, dry milk, lemon powder, three cubes of sugar this time, a tin of sausages, and still more chewing gum.

To those of us who think we must sit down to a sirloin steak or a roast of beef with all the trimmings before we can consider ourselves well fed, these rations may seem puny, indeed. Actually, however, they were put to the most severe tests under gruelling conditions before they were passed by the Army as satisfactory for emergency rations. In an effort to determine the bodily fuel value of these vest-pocket editions of meals, Army officials directed an expedition of fourteen volunteers to go into the great desert of the Santa Fe National Forest and to subsist on this sort of concentrated food for a whole week. Not only were they to live on the "K" ration completely, but also they were required to tramp a distance of 100 miles over the burning sands. This desert is at an altitude of from 5000 to 9000 feet above sea level, yet despite rarefied air conditions and the extreme heat, the human guinea pigs came through the ordeal with flying colors. They hiked from thirteen to twenty-one miles a day in temperatures which reached as high as 127 degrees, Fahrenheit, and ate their concentrates and liked them. The amazing part of the story is that each man was weighed before breakfast and after dinner each day on scales carted along by truck, for the men were carefully observed by doctors throughout the experiment, and except for blisters and sunburn, which could be expected under the circumstances, all fourteen of the experimenters came back in better condition than when they started. It would seem, therefore, that when our paratroopers and other soldiers find it necessary to make emergency use of their ration "K" they are in need of little

sympathy from the standpoint of intake of calories and enough concentrated food to maintain them for a limited period of time.

At any rate, the preparation of food in minute packages is a considerable improvement over the method which the Italian army was forced to adopt at one stage of its Ethiopian campaign. The situation was different from that of individual paratroopers or even a detachment of them, for whole columns of Italian troops had marched into such rough terrain that it was impossible to send them supplies by the usual methods. Furthermore, there were no refrigeration facilities for moving in freshly dressed or frozen meats or vegetables. The answer was that the troops had to be continually fed by dropping food from airplanes, and in this process a considerable number of live animals, including cattle, were parachuted to the advance army.

## TOWER JUMPING

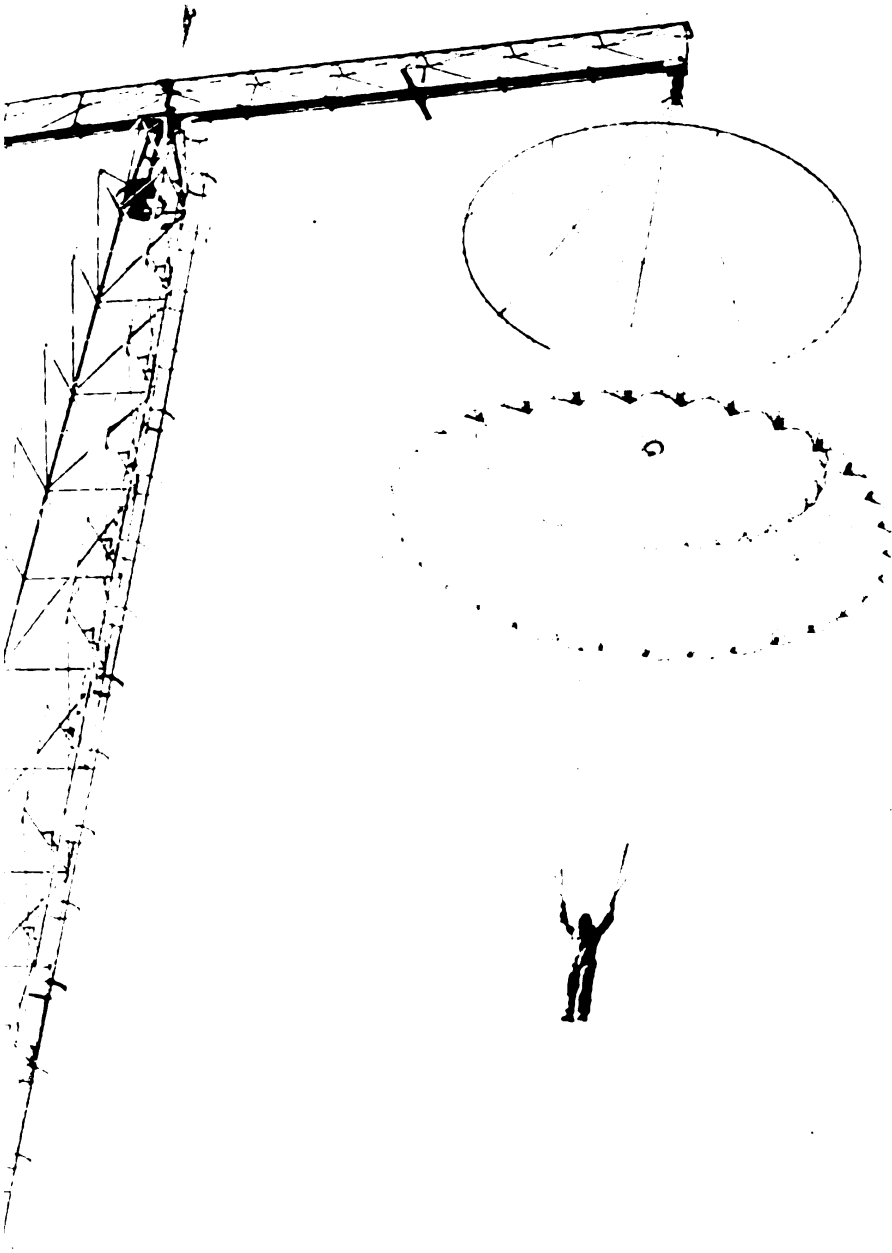
AT LONG LAST COMES the much-talked-of day when the training platoon will try the tower jumps. Of course, there's been even more talk among the men about how they will act and react when jumping from a plane, but that's still weeks away, and a drop from a 250-foot tower is really something to conjure with all by itself—even if the first drops are accomplished while sitting in a chair seat attached to a controlled chute, like the one at the World's Fair.

For the first few days at Fort Benning life was pretty complex, what with a lot of new orders, new men to get acquainted with, adjustments of all kinds to make, and Benning is such an enormous place anyway—thousands of acres, bristling with all kinds of soldiers, overflowing with so much equipment—that one doesn't wander far from barracks at first. Finally there was a glimpse of a tower from a distance, and a rather forbidding sight it was, pointing its steel finger straight up into the warm blue of the Southern sky. As the new men watched, even from far away, a tiny speck of white seemed to move upward toward a crossarm. Up, up, went the speck until it appeared to touch the grill work at the tower's peak. Just for an instant the white speck hung there—then it dropped and almost instantly was out of sight behind near-by buildings and trees. "Whew! That's what we'll do someday!" exclaimed one of the watching soldiers.

And now that day has come! It's a long, long way up to those crossarms—and it's a lot farther down, or so it will seem once up there!

Modeled on the famous parachute jump which thrilled thousands at the New York World's Fair, the towers at Fort Benning are 250 feet high, are constructed in much the same way, and each tower is equipped to operate a number of parachutes simultaneously. Fanning out in several directions from the top of the tower are long steel arms from each of which is suspended a number of wire cables, and each group of cables manipulates one captive chute. Eight of the cables of each group act as guide wires for one chute, being tautly stretched from ground to crossarm. Eight small but strong steel arms, or ribs, extend outward from a central ring to the guide cables and slide up and down these guide wires by means of smaller rings fixed at the outer end of the ribs. To a second spiderlike affair of steel arms, also running on the eight guide wires, are attached the lifting cables, which pass over pulleys on the crossarm of the tower and are attached to huge power-driven drums in the control house. When contact is made between the center rings of the two steel spiders, an automatic catch fastens them securely together. The upper spider serves only as a lifting arrangement which becomes automatically disengaged at the top of the tower to allow the lower spider, equipped with parachute and carrying two passengers, to drop the 250 feet to the ground.

The parachute itself is not the regulation type with which the men have been growing more and more familiar in their efforts to learn to pack it properly. It is fastened to the outer ends of the eight steel ribs that run on the guide wires, it has a vent in the peak, as do the regulation chutes, but it has no need of shroud lines, for the two-passenger seat is suspended from the center ring of the spider by a contrivance consisting of a crossbar, short cables, and heavy spiral springs. This parachute has



He's off: A "free fall" from that slender steel arm, high in the sky.

no fluted edges, nor is there any need for a pilot chute, but in all other respects it is a parachute, for it serves to retard the fall of the passengers. As it is a captive chute and cannot deviate its downward course in any direction because of the guide wires, shroud lines would not only be unnecessary, but also they would become fouled on the upward trip when the canopy of the chute flaps loosely on the ribs of the lower spider. In this apparatus, originally designed to thrill thousands of Fair-going pleasure seekers but now converted to the grim business of war, each man will make five controlled descents. After that, at another tower where the regular harness has been substituted for the chair, each man will be hauled up and dropped four times. Then, still later, will come three "free jumps," all preparatory to the real jump from the plane.

This is one of those parts of the training course where it wouldn't be surprising to have some of the men "wash out" and ask to be transferred to another branch of service. As a matter of fact, if this didn't happen in a class of 150 new men, it would be rather unusual, for height has varying effects on different people. Not everybody is equipped to be a steeple-jack or a mountain climber, even if there were enough mountains and steeples for all to climb.

The perspective that the airplane passenger obtains from a flying ship is nowhere near the same that he would find by looking down from the top of the Empire State Building, or over the edge of Niagara Falls, or the rim of the Grand Canyon. From the plane there is no connecting link with the earth, nothing solid that stretches down, and down, and down, which makes it possible to judge the height, or which produces contrast. There is only empty space—no jutting floors or rocks—nothing but transparent air, by which it is extremely hard to gauge distance. Hundreds of persons who have been frightened of great heights have, for one reason or another, been forced to

use a commercial airline to save time in travel. Greatly to their surprise and pleasure they found no sensation of height at all, and in many instances that first airplane ride cured their height phobia.

Certain people have often been heard to say they are afraid to look down from the top of a tall building because they fear they may have an uncontrollable desire to jump. Actually, the records show that deaths from this cause are very few. But there's no doubt about it, 250 feet is a considerable height. It is 87 feet higher than Niagara Falls; it is one-fifth as high as the Empire State Building. It wouldn't be surprising if a few of the boys who have done so well thus far flunk out on this test. It wouldn't be unusual, and it probably will be caused by something in their make-up which they can't, for the moment at least, fully control. People who suffer from a phobia of height are certainly not cowards. It is a psychological condition that may be brought on by any one of a number of physical or mental causes and often is curable.

There is no need for apprehension in the minds of paratroop recruits when they are confronted with the tower-training requirements of their course. Two of the men seat themselves side by side in the canvas chair, both strapped in. They couldn't jump out if they tried. The whole apparatus—towers, crossbars, cables, pulleys, winding drums, and all—is carefully tested and checked periodically. There's not the slightest difference between the drops in the chairs at the Fort Benning towers and the thousands upon thousands of drops made by men, women, and children who tried the parachute jump at the World's Fair, except that they paid for the privilege and called it fun, while the boys are being paid to do it, and it's part of their job.

The instructor gives the signal, the motor hums, the drum begins to wind, and up go the first two, slowly at first, and then with slightly accelerated speed. The great panorama of

Fort Benning begins to unfold beneath them, and that in itself is something to look at. There are hurried glances in every direction to see all that can be seen in the few seconds it takes to reach the top. Far in the distance are small, spurting clouds of dust and smoke—a firing range. Somewhat nearer are a number of men, looking no bigger than ants, who seem to be engaged in some sort of open field maneuvers. Just over there are the platoon's own barracks and the parade ground where the men go through daily calisthenics, and nearly the whole course of that conditioning run, now a mile in length, is visible. There are the jumping platforms, there's Ryder's Death Ride—and then, suddenly, the upward pace slackens. The captive chute, its chair containing the two soldiers, is almost up to the cross-piece at the top of the tower. Straight down is a ring of tiny, upturned faces—the gang, watching. If their hearts don't beat a little faster, if they don't experience just a moment's apprehension as they look down through emptiness, it will be surprising.

There's a fractional second of hesitation, a sharp click, and instantly the wind is rushing up—and so are those diminutive people. Four strong bronzed hands grip the arms of the chair and the restraining straps until the knuckles are white. Maybe one of the men has thrown an arm across the shoulders of his companion in order to get a better grip on the other side of the chair. If he did, the chances are there'll be an involuntary hug, but probably neither will notice it. One soldier gasps involuntarily and the air rushes into his lungs. The other one shouts something indistinguishable, and down, down, they plunge. Like a flash comes the realization that this is fun, that the speed of descent isn't so fast but that one can actually know all that is going on, and there is a pleasant sensation of self-confidence as one finds he is in perfect control of all his faculties. The entire drop of 250 feet takes only a few seconds, but



Hooking the fly-away chute to its frame-work preparatory to a "free fall" from the 250-foot training tower.

that has been long enough to acquire a genuine liking for this new game. The passengers do not strike the ground in this controlled jump, but there's a cracking good bounce at the bottom of the drop. At a safe distance above ground on each guide wire is a small block of steel fastened securely to the wire. Each of the eight arms of the spider, traveling down a guide cable, smacks into one of these blocks and the parachute jump is over. The shock of the sudden stop is absorbed by the spiral springs in the chair suspension arrangement and by a series of resilient rubber ropes. The "Jersey bounce" at the end of the fall isn't at all bad, and it doesn't disturb the grin of triumph that both recruits are proudly wearing.

There will be four more of these luxury drops in the chair seat, five in all, and then it gets tougher! But by the time the fifth chair ride is over, there is a certain familiarity about the top of the tower, the way everything looks from up there, that has created a strong feeling of confidence, which is exactly what those five rides were intended to do. For now comes the most severe phase of work thus far in the training course, the same descent of 250 feet in the same type of captive chute, but this time each man will be strapped in a regulation parachute harness, hauled to the high-up crossbar, and dropped. Because the parachute harness is to be used in the next four jumps, every potential paratroop soldier first had to learn to use that maze of webbing and clasps, both in Ryder's Death Ride and in the hanging parachute.

In the chair drops from the tower there was a canvas seat to sit on, a canvas back to lean against, and a broad strap that went securely and comfortingly across the legs, holding the rider solidly to the seat. Even though, just as in the chair drop, the passenger doesn't actually hit the ground, the harness drop is different. The straps and webbing of the harness feel snug, secure, and safe, it's true, but there's no seat to sit on, nothing

to lean back against, nobody's shoulders to grip, and nothing but empty air in which to dangle the only two legs one owns. As the cable drum winds on, as the ground and that ever-present ring of upturned faces drops farther and farther away, feet feel as hands have felt at those times when a fellow didn't quite know what to do with them. Can't put them in pockets, can't stand on them. They just dangle, helplessly and ridiculously, as the cable drum grinds relentlessly, drawing the harness higher and higher.

Almost to the top now. Soon the release will click, and down will go the falling paratrooper. Several seconds ago his hands reached involuntarily upward to the shrouds which weren't there. Only suspending ropes, but it felt good to grip something and grip it hard. And that is a reminder that when he gets the "Jersey bounce" at the end of this drop, his whole body is going to have to absorb the shock wherever the harness webbing passes across, under, and around. He *must* remember to look down at the ground, to try to gauge his distance, and, at the right second, to pull himself up on the ropes which, in this drop, serve as shroud lines to help break the force of the sudden stop. Despite an arrangement of spiral springs and flexible rubber ropes with which the harness is suspended from the iron spider, and which will help to soften the coming jolt, he will probably feel that his body is going right on through the harness webbing. He must remember to chin himself on the make-believe shroud lines, just as he will have to do later with the real thing, and if he does it with the right timing, the shock will be materially lightened.

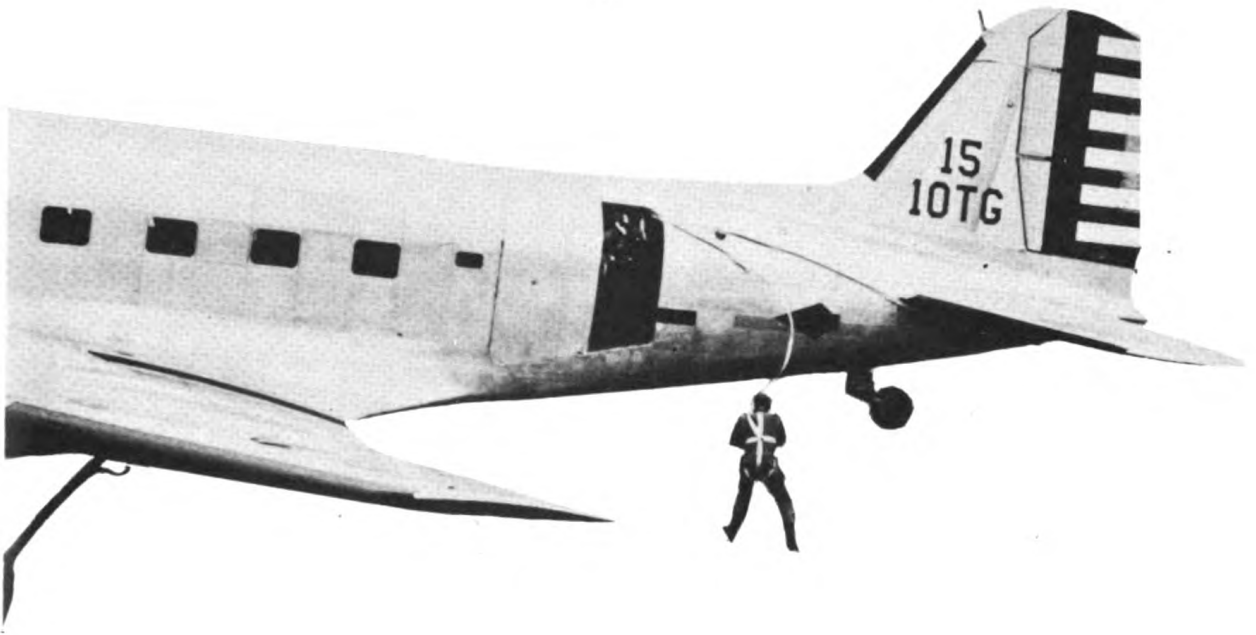
"Click!"

Down he goes! There's a quick snap of the parachute canopy as it fills with air and begins to function. Actually, the rate of fall is not very great, but it seems as though the ground were rushing up at express speed. Hands grip, the ropes even tighter.

They creep up an inch or two for a better hold. Eyes are fixed on the ground. Brain is calculating distances. Not yet—mustn't chin oneself now—another half-second, perhaps.

Now! And with all the new, virile strength in young arms and shoulders the fledgling paratrooper pulls himself up on the risers. The spider stops against the steel blocks with a clang, the spiral springs and the rubber ropes do their stuff, and the chinning process takes place at exactly the right moment, but nevertheless, legs and buttocks, where they are encircled by the harness webbing, feel as though encircling lariats had suddenly and vigorously been drawn taut enough to stop the circulation. There are a couple of more bounces on the resiliency of the springs and rubber, and then the instructor helps the soldier down and out of the harness. With hands that are moist from physical exertion, and maybe from a bit of nervousness, he vigorously rubs legs, thighs, and buttocks where the harness got in its work. There's a grin this time, too, but perhaps it's not quite so enthusiastic as it was after the chair drop. Yes, sir! That harness drop is tough—the toughest thing so far in this toughest of all training courses for war. It gives a pretty good idea of the come-uppance a fully armed paratrooper will get when he actually leaps out of a plane and the parachute opens with a sudden and body-shuddering snap. That's why it's in the course, and there are three more of those harness drops, four in all, to accustom each man so far as possible to the terrific jerk that he will get when his chute canopy opens.

When a paratrooper first leaps from a plane, he starts to fall at the rate of about 45 miles an hour, but this lasts only a couple of seconds, until the parachute opens. The opening of the canopy is not a gentle operation. It snaps wide open with an abruptness that reduces the traveling speed from around 45 miles an hour to between 15 and 20 miles an hour. In an automobile, such a drastic change of pace could well be pre-



Somewhere over Georgia this static line has unfolded perfectly. Soon the man at the lower end of it will receive the jolt of his life, as the parachute, opened by the automatic rip cord, blossoms into full effect. Nevertheless, that jolt is a grand and glorious feeling.

liminary to an involuntary swan dive through the windshield; in a parachute harness, there will be a fleeting sensation that the skeleton is about to slide feet-first out of the body. In the harness drop from the tower the men were not, of course, falling at any 45 miles an hour, so the yanking they got was mild compared to what lies ahead. Yes, it's a tough life and a strenuous one in the Parachute Battalions, but a great one—if a fellow can take it!

## SKIING PARATROOPERS

IN OUR RAPIDLY GROW-  
ing Paratroop Battalions there will be some men who will have an opportunity to put to excellent usage any skiing experience they may have had, for Parachute Battalions are being made an important component of American Mountain Divisions of fighting men. Twentieth-century warfare is no respecter of seasons or latitudes. Planes, wheeled machines, and ships have pushed the borders of this Armageddon not only to far-away tropical isles, but also to the coldest outposts of the earth. Consequently, the United States Army, in accord with its policy for preparing for all eventualities, is training both ski troops to fight in the deep snows of mountains and plains and combination ski-parachute fighters to complement the efforts of the fighters in frigid climates.

When the bright winter skies above the mountains of Utah abruptly broke out with a rash of silken canopies and white-shrouded men during the winter of 1941-42, it marked the first jump in American military history of the new ski-parachute soldiers. As soon as the white-clad soldiers had leaped from the planes, skis and other equipment necessary to winter warfare were dropped to them with what are known as cargo parachutes. These pioneers in this new brand of warfare are a lusty offspring of the ever-colorful parachute troops themselves. Following their rigorous training in the high valleys of Utah, the para-

troopers who made that initial ski-parachute-fighter jump that frosty morning, have by now become an important factor in the strategic strength of a crack Mountain Division, of which they were made a part.

The carefully selected men who will eventually comprise more of the jumping-skiing brigades will wear a reversible ski uniform, forest green on one side and snow white on the other, to permit greatest use of protective backgrounds. Fabric for these uniforms, which follow the conventional ski sport suit in design and which are worn by all ski troops, whether they are members of the ground forces of a Mountain Division or belong to the paratroop detachments, is wind- and water-repellent and consists of two layers of light-weight cotton duck, which has been rubberized. Although Finnish soldiers used a white cloak-and-peaked-cap type of uniform in their fighting against the Russians, it is believed the newer American ski uniform is the first to combine two protective colors. Under the severe tests to which all prospective cloth for ski trooper uniforms was subjected by the Bureau of Standards and the Technical Laboratory of the Philadelphia Quartermaster Depot before adoption by the Quartermaster Corps, the fabric now used was found to be the most water- and wind-resistant.

The ski uniform, while water-repellent, is designed primarily for camouflage, wind resistance, and warmth. Troops also have "typhoon suits" evolved for the rainy season. These are constructed of a still lighter weight, balloon type of rubberized fabric. The ski boots are not unlike the regulation paratrooper shoes, and were specially designed with strong leather straps and buckles. As the proper kind of footwear has always played an important rôle in Alaskan and other northern-climate clothing, American snow troops have leather snowshoe boots of the moccasin type, and rubber boots, as well as their ski boots. For

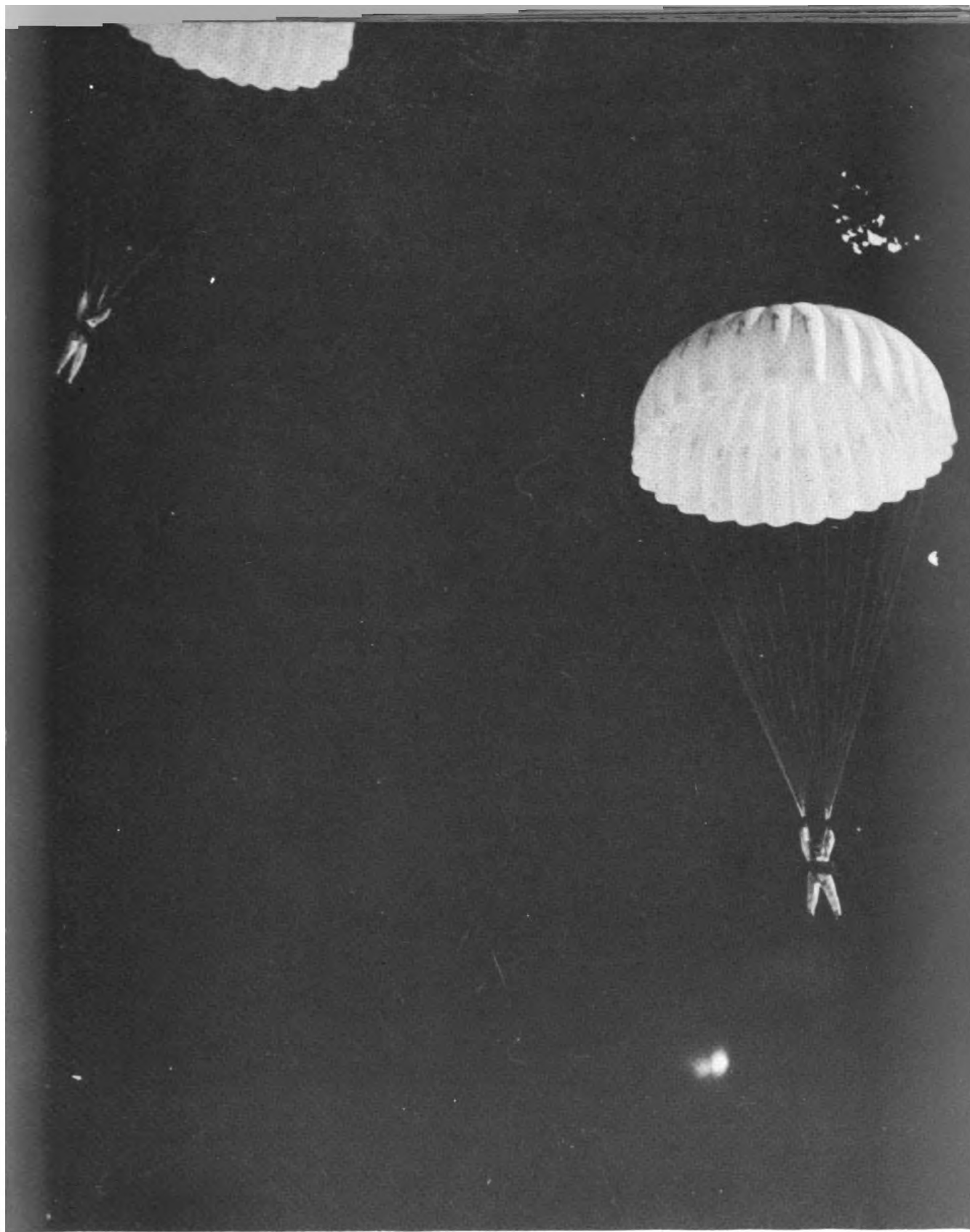


Above: Overshoes, heavy gloves, and sunglasses distinguish these ski paratroopers from their fellows who land on ground instead of snow.  
 Below: Para-ski soldiers clamber aboard for a practice leap into snowdrifts.





Garbed in white for camouflage when on the ground, and wearing their reinforced ski boots, these bemittened, begoggled para-skiers will soon leap into chilly space.

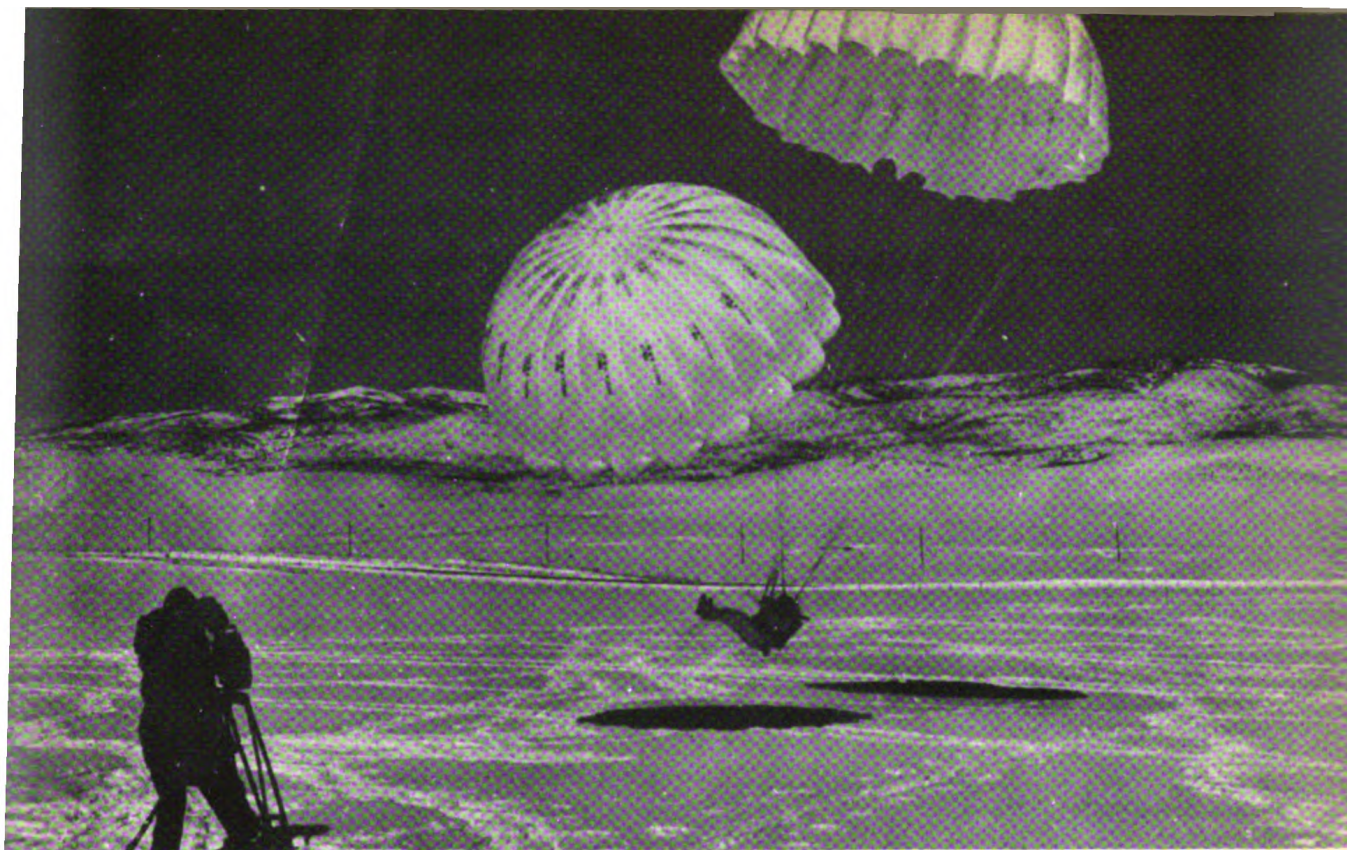


Silhouetted against the sky, white-clad para-ski troopers float down into the land of winter. Their skis will follow in cargo chutes.

extremely cold weather these soldiers are furnished with fur parkas and fur mittens.

Indicative of the numbers of snow troops that may eventually be under American arms, and therefore, of the potential numbers of combination ski-parachute troops that may also be employed, are the figures published in November, 1941, covering the purchases of Far-North fighting equipment. From contract lists available it was learned that up to that time more than 200,000 parkas, more than 40,000 pairs of snowshoes, over 34,000 pairs of skis, and something like 107,000 pairs of ski goggles had been ordered. Currently it was announced that a new type of sleeping bag, light enough to be carried in the soldier's pack, yet warm enough to protect him in a temperature of 40 degrees below zero, had been developed. Information is not available as to how extensive a part the combination ski-paratrooper will play in warfare waged by the snow troops, but the war in the Aleutians during the summer of 1942 may give some indication as to the need for heavily armed men who not only can leap from a plane with a parachute and make a descent onto snowy wastes, but who also can expertly and rapidly maneuver on skis to the detriment of the enemy.

All branches of our fighting land forces are taught some rudiments of the art of life in the great outdoors, such as how to make camp, how to sleep as comfortably and as dry as possible, and a number of other things that contribute to safety and health. But troops like Britain's Commandos, like our own Rangers, and like the paratroopers and snow troops, who will of necessity find themselves in difficult situations, must know more than mere rudiments. Even with their emergency "K" rations, they should have some ability in putting food together so it will be edible. They must therefore have knowledge of plants, berries, and roots that may be found in the forest, in the swamps and fields, and in other wild sections of the world



Above: Even with two parachutes this lad is due for a bump unless he gets his feet under him in time.

Below: A soft landing in deep snow reduces the shock. Blackened face prevents sunburn. Dark object in the distance is a cargo container which was dropped in another chute.





Freed of his parachute harness, this para-skier runs as fast as deep snow will permit to where his skis and guns landed in their own cargo chute.



Many of the men of the para-ski battalions had never seen snow in their lives until they went in training, but they became experts in no time.

so that they will know what is and what is not good to eat.

A few field cooking recipes may prove invaluable. In that connection, early boyhood training, perhaps as a Boy Scout, will prove handy in the building of small cook fires, when any fire at all is permissible. Knowledge of how to tell directions from moss on the trees, from consultation of maps, a compass, and the streams and rivers, and even from a watch will be invaluable. The trained woodsman knows to a very close degree when he has traveled a mile. He can gauge the weather in advance by many signs. He can read telltale trails of animals and humans and make an excellent estimate of how long ago the tracks were made. All these arts of the woodsman and many more are part of the paratrooper's kit, for he is a jungle fighter, a disciple of the stealthy methods of the Indian, and a student of the scout of early Western days, when the greatest care and skill were needed to preserve one's scalp in enemy territory.

Initiative, imagination, and ability to think and act fast and forcefully are characteristics that American paratroopers must have. A split second's decision may mean the difference between success and failure, not only for the individual soldier, but also for the other men in his unit. Illustrative of a piece of quick thinking and immediate action on the part of one parachutist, who was forced to leap from his damaged plane over the island of Java during the hostilities there, is the experience of an American fighter pilot. Though not a paratroop soldier, the pilot's training had included extensive study and experience with parachutes, and his instant reaction to the emergency in which he found himself is typical of situations which may some day arise to confront members of any Paratroop Battalion. Once clear of his plane, the pilot pulled his rip cord, the chute obediently opened, and the chutist found himself descending almost in the middle of a small Japanese landing force which was disembarking from boats onto the beach.



Out of the parachute harness and onto their skis takes these men but a few seconds, and then they are ready to skid away to engage the enemy.

Through skillful manipulation of the shroud lines the pilot managed to slip his chute off to one side and finally landed safely some 200 yards from where the Japs were assembling their equipment. During the descent he had loosened the straps of his parachute so that he could untangle himself instantly and attempt an escape on foot. However, just as he struck the ground close to a jungle road, he saw a Javanese native pedaling a bicycle in the direction of the Jap landing party. By impromptu sign language the American convinced the native that he should turn around, travel in the opposite direction, and give the planeless pilot a ride on the handlebars. This the native did, but the best speed he was capable of wasn't swift enough for the escaping American, particularly as Nipponese rifles were by now pouring a rain of bullets in his direction. Quickly changing places, and placing the Javanese on the handlebars, the pilot pedaled with all his might, but not fast enough to get completely out of range before the enemy opened up with a machine gun. This frightened the native off the handlebars and into the jungle, and the lightened bicycle then literally flew down the road until, a few miles farther on, the American was picked up by a Dutch officer in an automobile, and together the two made their escape. Some day, when the war is over, perhaps someone will make a compilation of the most thrilling experiences that will have befallen our paratroopers and our aviators, not to mention the other branches of the service. Certain it is that such a volume would out-Munchausen the great Baron, and make the exploits of dime-novel heroes seem like mere cops-and-robbers games of the youngsters.



Off into the hills and valleys, barely distinguishable from the snowscape in their white uniforms and parkas, go the para-skiers.



A fully-equipped para-skier slithers his way around pine trees and underbrush as he silently scouts the "enemy" in maneuvers.



Above: Their white uniforms blending perfectly with the snow, their rifles melting into the boulders, these men are well camouflaged.

Below: Para-skiers receive several hours training each day on route marches with full packs and complete equipment.





*Above:* This parachute which has been lying in the snow will be well dried in the drying lofts before it is used again.

*Upper right:* Small units learn to care for themselves while operating away from the main body of troops. These men doff packs preparatory to making camp.

*Lower right:* With their equipment stacked, the para-skiers link arms and march back and forth to firmly pack the snow for their camp site. This time the mascot came along, but in war he'll stay behind.







*Above:* Miniature gasoline stove melts snow for drinking water for these burrowed-in para-skiers. Their "K" rations will taste good prepared over the tiny flame and they'll sleep warm and dry in the snowdrift.

*Upper left:* A lesson in how to fire a rifle from a prone position in the snow, despite skis, heavy pack, and bulky clothes.

*Lower left:* Immediately after landing these men have cached themselves in a snowbank and have set up a small mortar with which to blast the enemy.



Above: Our ski army practices every day snow conditions will permit. At the present rate the United States bids fair to rival the men of the Scandinavian nations in Finland in their expert use of the skis.

*Upper right:* Barely discernible from the snow in their white uniforms, and with skis and guns blending with the underbrush, these para-ski troops have learned the art of throwing themselves prone on an instant's notice and of going into action.

*Lower right:* Agility, strong muscles, and instantaneous muscular reaction are only part of the story in preparing for a quick maneuver such as firing from a kneeling position with skis on the feet.





Just before "The Hangman's Drop" the student paratrooper is suspended horizontally 150 feet above ground.

## THE TOUGHEST TEST

DURING THE ENTIRE course of his training a novice paratrooper may always "refuse" to jump. Some do. And after the tower drop in the parachute harness, comes one of those times when some flunk out. This is the occasion when each man is required once more to ascend the 250 feet to the top of the giant steel training structure, this time in a free parachute which he must manipulate in accordance with what he learned on the parachute hoist and on Ryder's Death Ride. The chute with which this free fall maneuver is conducted is another of those umbrella-like affairs, with ribs which hold it open, but it is not restricted in any way by the guide cables used in the other tower jumps. In other words, it is a complete parachute jump except that the man doesn't actually jump from a plane, nor is he called on to pull a rip cord.

What happens is that the recruit is hooked into his parachute harness just as he was for the harness drop on the guide cables. This time, however, the full-fledged parachute is firmly expanded by the ribs, it has shroud lines just as any other chute, and there will be nothing to guide it to earth after its release at the 250-foot mark except the ability of the soldier it is going to carry. Up, up the cable draws the opened chute, just as it has many times before. The fledgling parachutist dangles, swaying pendulum-like, back and forth, and doubtless his heart, like a

pendulum-operated clock, is ticking pretty loudly, for this time there will be no restraining influence of guide lines, no mechanical brakes to ease the shock of getting back to earth. It will be up to the new paratrooper to make his own landing, and he hopes to high heaven he will remember all the things he has been taught.

Still up and up goes the chute. The ground falls away, far away, very fast. Then, click—and the already opened chute has started downward, obeying the law of gravity. There's a slight wind and the parachute drifts gently away from the top of the tower. Down there to the right there's a group of trees. Mustn't land in those. How was it they told the platoon to spill wind and so get direction? Oh, yes, a fellow has to chin himself on the shroud lines, the ones on the side toward which the young parachute pilot wants to go. Nervously, and tentatively, so as not to spill too much wind, the soldier pulls down on the riser cords. The chute slips obediently to the left, avoiding the trees, and instantly one of Uncle Sam's newest paratroopers has all the confidence in the world in himself and in his ability to control his strange sky-carriage. This one tiny incident, so all-important, so vital to the future success of our air-borne fighters, happens in one way or another to nearly every recruit who has the nerve to go through with the free parachute drop. It is one of those experiences that gives a man the ego he needs eventually to perform some of the most dangerous missions on behalf of his country.

Here's the ground, coming closer every quick second! After all, it doesn't take long to get back to earth, for this is only a 250-foot fall, while the real jump, yet to come, will be at least 1200 feet. Now comes some fast thinking, some quick action with the memory box to recall all that has been learned about landing. Reach up and grasp the shroud lines; get ready to land

## THE TOUGHEST TEST

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on the balls of the feet; remember to flex the knees and to land relaxed. The wind isn't strong, but it will fill the canopy of the parachute sufficiently to drag its passenger along the ground unless he can recall how to go into that pivot-and-roll he has been practicing for so many weeks. Down! There's a smack on the buttocks, a bump on the shoulder, the wind begins to blow the parachute across the field—thank goodness the trees were missed—and then somehow, crudely, but reasonably effectively, the slightly bruised paratrooper is back on his feet, digging his shoes into the soil of Georgia and pulling lustily on the riser cords to deflate his parachute. A sergeant and two members of the ground crew are running toward him with encouraging cries, and after all, for the first time in a parachute, the recruit has done very well. No broken bones, no sprained ankles. Just a first-class descent from the 250-foot tower in a free chute, which entitles him to graduate to the "hangman's drop," a procedure that will make the free parachute fall seem tame by comparison.

Not every man, regardless of his physical perfection, "has what it takes" to assimilate the strenuous training, the unfamiliar heights, and the nerve-tingling thrill of the jumps. To those men who are not "big bruisers," let it be known that it takes more than mere physical size to become a paratrooper. There's a thing known as "guts" which little fellows can have to as great an extent as the larger men. Large or small, it's guts they want in the paratrooper. If he's got 'em—he'll make it! If a man finds he cannot do what is asked of him, he is neither forced nor coerced, and above all, he is not censured. The only thing that happens is that he doesn't appear at table for the next meal, and his kit and all his belongings are unobtrusively removed from barracks. Quietly and quickly he is shipped away from camp, back to the ground troops, for his own benefit as well as for the good of the battalion in training.

No one, therefore, will ever attempt to force a recruit into taking the test of the "hangman's drop," but as it is the final scrutiny of the extent to which he has mastered complete control over nerves and coordination of muscles before he makes his first parachute jump, it is necessary that the test be passed. Failure to pass this most rigorous of all phases of the training course, or refusal to take the test means, in simple language, another washout.

The "hangman's drop" is mean, but it is vital. It is a hard test physically, but by now, if the men have kept training rules, if they have entered into the calisthenics course with the right spirit, bodies will be in condition to absorb it without suffering any ill effects. It is an even harder test mentally, for it requires plenty of those guts just mentioned to be strapped in a parachute harness, suspended horizontally 50 feet from the ground, and told to pull a dummy rip cord which trips a releasing hook that will cause a drop of 15 feet into probably one of the worst jerks a man has ever experienced. This simulates, even more than did the harness drop from the tower, the fall from a plane before the parachute opens, and to make it tougher, a tiny rubber ball is held in the left hand at the start of the test. If it is still there when the test is over, the recruit is considered to have complete control of his nerves. Another method of nerve test used in the "hangman's drop" is to require the dropee to count three in the interval of falling and then shift hands on the rip cord handle, just as he would have to do with his emergency chute if the main, back-packed chute didn't open. And after he's successfully done this trick from a 50-foot height, they'll haul him in his harness up to the 150-foot level, where he'll do the whole thing all over again. In both cases, however, the actual drop will be only 15 feet before the sustaining ropes yank him to a sudden standstill in midair.

There will be a lot of good sound masculine hearts beating



Practice jumps for riggers in the Marine Corps sometimes include leaps from Navy blimps with the free fall type of chute.

a little faster on the morning the gang gathers at the foot of one of the towers for the hangman's drop test. Dozens of palms will be moist from a certain amount of permissible nervous apprehension, and a score or so of regular lads are going to half wish they had never started this business of trying to be a paratrooper. That is all very natural and understandable, but the consoling thought is that not only the officers, but also a few thousand members of Uncle Sam's Parachute Battalions have gone through this test—and very many more by now—and if they can do it, new men can do it! Furthermore, not a man joined this outfit with his eyes closed. All knew, from stories and articles in magazines and newspapers, that the paratroopers are a tough, hard-bitten bunch of men who let nothing—absolutely nothing—stop them from accomplishing what they set out to do. And now, after weeks of training, they've discovered that the men who wrote those articles were unintentionally masters of understatement. It wasn't the fault of those writers that the life of a novice paratrooper turned out to be harder and rougher than anything heretofore imagined. One has to live the life to find out—and the training platoon has been doing just that most successfully up to now.

However, it's one thing to read about it, it's another to hear some of the old-timers boast of it, it's still something else to watch one's buddies go through with it, but—when it gets down to the individual case and a man is strapped in the harness and hauled up so he is suspended belly and face to the ground, 50 feet below—well, there's never been anything like it in his life! In the very few seconds that one hangs there before orders are shouted up, there's a sudden realization that the left hand is clenched. Why? Oh, yes, that's the little rubber ball—the one the officers handed out—the one they said *must* be retained, no matter what happens. They were pretty insistent about hanging



Out of the blimp's door and DOWN goes the practicing parachute rigger.  
His pilot chute has already opened, so it's happy landings.

onto that rubber ball—and they must have impressed their idea in mighty good fashion, for it is still there.

“Are you ready up there?” comes the far-away call from the sergeant.

“Yes, sir!”—and then, falling, falling through space.

There are times when that marvelous instrument, the human brain, moves so fast that the speed of thought is frightening. This is one of them. There may come to mind in those few fractions of a second it takes to fall a mere fifteen feet something like a recent newspaper story of an American aviator. He was forced to bail out at 3000 feet over the sea when the Japs set his plane on fire, and for fear the Nips would shoot at him, he refrained from pulling the rip cord until he saw the ocean getting pretty close. He said afterward that the only sensation of falling was the flapping of his coattails, as he apparently was dropping horizontally, with his back toward the earth. However, after he had pulled the rip cord, the parachute opened by passing between his legs, and the canopy snapped into effectiveness. He said of it afterward: “I thought for a moment my back was broken.”

Funny that all that could pass through a human mind while the body falls only fifteen feet, but even stranger ideas and recollections come to mind. On the other hand, some men go through the hangman's drop and have no recollection whatsoever of that momentary fall. In any event it actually ends so quickly that about the only sensation that remains is the physical one caused by the abrupt come-uppance the dropping man gets when he literally reaches the end of his rope. As in the tower jumps, the broad harness straps bite harshly and the entire body receives an A-No. 1 jolt, particularly because the apparatus is so arranged that when the end of the 15-foot fall is reached and the parachute harness goes to work, the position

of the body changes instantly from a horizontal one, in which it started the drop, to a vertical one. This, of course, is exactly what will happen when the new soldier of the skies uses a real parachute in a real jump from a real plane.

While there is a definite technique to the leap from a plane that, if correctly followed, tends to prevent the body from somersaulting or whirling haphazardly through the air, thereby minimizing the shock of snapping into a vertical position when the chute opens, many factors enter into every jump that may tend to disarrange the entire technique. The speed of the plane, the force of the slip-stream from the propeller, a sudden air pocket, and other uncalculated forces may start the jumper down head-first, may send him into a dizzy spiral, or may cause him to drop any way but feet first. From any unorthodox position the entire body is bound to take a momentary beating when the canopy opens with its sudden snap and goes to work. The hangman's drop, therefore, becomes not only an important part of training and conditioning, but also a foretaste of what is to come.

But with all this, what of the little rubber ball so tightly clenched in the left hand at the start of the drop? Was it lost in the involuntary reflex of muscles after the abrupt shock of stopping in midair, or is it still in that death grip in which it started? That remains to be seen. Some men will retain it with no trouble, others will be surprised to find it still in their hands, perhaps having forgotten consciously they had it at all, while subconsciously well-trained and splendidly coordinated nerves and muscles have done their job. Still others, to their dismay and chagrin, will find they have muffed it completely, or will even have forgotten they originally started with it until, after having been lowered to the ground, the sergeant hands it to them with a laconic, "Here's your ball, soldier." And in

that event the hangman's drop is practiced again—and maybe again and again, until it all becomes mechanical and the desired coordination is finally achieved.

But if the first drop was tough, the second, starting from three times the height of the first, is really the greatest experience yet. The actual fall is still only fifteen feet, the same as the first fall, before the apparatus functions and jerks the jumper to a vertical position—but those few seconds that the man is suspended horizontally, face down toward the ground 150 feet below, are something that must be experienced to be fully appreciated. Although by now the men have practically complete confidence in the strength of the stout canvas webbing of which the harness is composed, and in the ropes, cables, resilient springs and rubber, and the trainers who manipulate the apparatus, 150 feet is a long, long trail, perpendicularly—especially when a fellow is lying face down in a canvas harness, looking at the earth so far away. Nevertheless, thousands of youngsters have survived it, have even become so accustomed to the sensation that it doesn't bother them at all. Others, however, even when veteran jumpers from planes in flight, still shudder when they think of the hangman's drop, and they'll report that the real thing is infinitely easier and nowhere near as frightening and shocking. In any event, when a man has graduated from the strenuous course of the hangman's drop, he is ready at long last to try his hand at the real thing—a parachute jump from a plane high in the air.

## PSYCHOLOGY OF PARACHUTING

WHEN THE TIME ACTUALLY arrives for the first real parachute jump from a plane, there is an almost tangible tenseness in the air, an atmosphere of nervous expectancy. It affects one and all, instructors and students, to varying degrees, but unquestionably the condition would be far worse had it not been for the several strenuous weeks of physical and mental preparation that have gone before.

Underlying the entire course of instruction has been a basic psychology: to dispel fear of height and falling; thoroughly to convince each man that, as a paratrooper, he is pretty much a super-soldier, mentally and physically; to drive home the idea that parachuting is simply another method of transportation, not a circus or carnival exhibition.

To accomplish this the training course was evolved around three essential factors: absolute physical perfection and stamina; a technique involving proper use and coordination of this strength, the parachute, and other paraphernalia; and a psychology which starts with the simple premise that a parachute is just another way of getting from here to there. Plainly stated, it is a contrivance which, under skillful guidance, will carry a man from a flying plane to earth as safely as an automobile can take him through heavy Sunday traffic at high speed, and probably much more safely.

To this end he has been taught to look on his parachute as

a practical means of getting him pretty close to where he wants to go, rather than as a gadget with which he will perform various spectacular feats. In fact, the word "spectacular" has no place in the new vocabulary which is now a part of his life in the parachute troops. This business of stepping or jumping from a plane and floating to earth is eventually going to become as commonplace as bacon and eggs, and with that thought in mind, he has had it pounded into him from the very beginning that his parachute is merely his aerial automobile, motorcycle, or even kiddie-car, if you will. If he handles it properly, manipulates it with the same care he should use in operating any other type of conveyance, it will take him safely where he has to go.

To many who have never flown in an airplane, and even to many who are habitual air travelers, this attitude toward a parachute may seem impossible, if not fantastic or ridiculous. Nevertheless, it is a perfectly sane and sensible consideration of a parachute, not a whit more crazy than the attitude millions of Britons have come to assume toward the deadly rain of explosives and fire which has fallen on them so often. They and the paratroopers both respect the dangers—which is far more than can be said for thousands of American automobilists—and, respecting the risks, having studied them from all angles, they have learned how to cope with them, how to minimize them, and how to regulate their mental and physical attitudes accordingly.

All this is not by way of saying that the sky soldier is in no danger. He is. So is every soldier and sailor and, in this war, the same holds true for civilians. But the entire training course of the paratrooper, as is true of the training courses for all branches of our armed forces, has been carefully worked out to reduce the chances of injury to the lowest possible minimum. A dilapidated or broken soldier or sailor is of utterly no value to his country—he is a liability. It therefore becomes the simplest

of logic and behooves all concerned to keep the men in the best possible condition both during training and while in active service.

It took centuries of experimentation and study to learn what is known today about parachutes and their various adaptations, and the cost of our present knowledge, as has been so tragically true in many another field, has been measured in many casualties and near casualties. It is indeed a far cry from the fifteenth century, when Leonardo da Vinci, credited by some historians as being the original parachute inventor, made his drawing of such a contrivance, on down through the ages to the thoroughly tried and tested chutes used by the armies of today. It is a wryly interesting commentary that while the great Italian thought of his invention in the light of a safety measure, and that while hundreds of years of experimentation followed this theme, the parachute, like the airplane for which it serves as a life preserver, has come to be an indispensable adjunct in the art of destruction. By way of explanation of his drawing, da Vinci wrote: "If a man have a tent roof of calked linen, 12 braccia broad, and 12 braccia high [a braccia is approximately one yard], he will be able to let himself fall from any great height without danger to himself." Nearly 600 years later Stanley Switlik, head of the Switlik Parachute Company, wrote in the preface to his booklet on Switlik chutes: "The parachute—the lifeline of the skies—for the airman and his precious cargo of life. . . . Once considered a breathtaking adventure, the use of the parachute is now commonplace." In a contemporary booklet, the Irving Air Chute Company, Inc. states: "Today, lifesaving in the air has become universally recognized to be of the utmost importance, not alone from a humane but also from a practical and financial viewpoint as well."

So, despite the agreement of ancient and modern proponents of the parachute on its basic use, its primary value as a pre-

server of life and limb, the mailed fist of Mars has twisted and contorted this peacetime utility of commercial aviation into a valuable component of lightning warfare as we know it today. Nevertheless, even though the use of parachutes has now progressed far beyond the wildest dreams of pioneer jumpers of a few years ago, even though the safety factor has been increased a hundredfold, intense studies and continuous research are still being carried on by the government, by parachute and airplane manufacturers, and by private individuals and organizations.

To analyze the many situations which the parachute trooper must face, to provide sound principles on which his training should be based, the United States Army Medical Corps, under Captain Harry G. Armstrong, opened a physiological research laboratory at Dayton, Ohio, where tests were, and still are, being made to help the medicos learn just what mentally confronts a parachutist before his jump, and what he must be prepared to encounter, mentally, physically, and psychologically, during his descent. For example, in combat warfare, it might be necessary to leave a plane when it is traveling at a very high rate of speed. In that case, the parachutist will momentarily be moving at the same rate as the plane, and were he to open his parachute before his speed has slackened, the strain placed on the parachute would be sufficient to break both leg and chest straps. That condition, however, is not likely to obtain in the case of the paratrooper, but might, and has, faced the combat aviator, or the men of a bomber. When a troop-carrying plane, loaded with parachute fighters, reaches a point over the objective which the jumping soldiers are required to reach, it invariably slows down to as low a speed as 95 to 100 miles an hour, whereas the combat ships, in the event they become disabled in warfare, are customarily traveling at far greater speeds, and the few seconds in which the crew has to abandon their plane necessitates that they utilize the delayed parachute jump rather than

the static line jump, which is the basic and preferred method for unloading paratroopers. Nevertheless, in case of emergency, every paratrooper's chute is equipped with hand-operated rip cord so that he, too, can make a delayed jump from a fast-traveling plane.

The perfection of the parachute of today is such that medical men have been able to give close study to, and find out the answers concerning, man's physical behavior and reactions in the course of a long fall. They have found, for instance, that contrary to the long-held common belief, a man does not lose consciousness in the course of an extensive fall before opening his parachute. In fact, a Russian aviator underwent a free fall of around 30,000 feet; an Englishman is credited with having dropped some 13,000 feet before pulling the rip cord. Still more recently Arthur H. Starnes, who has made more than 300 jumps from airplanes in the past sixteen years, allowed himself to become the guinea pig in a series of experiments in which he used the free fall for varying distances of from 8400 feet to 16,500 feet. Starnes was equipped with all manner of self-recording scientific instruments, including a radio set to record his heartbeats; a barograph to trace the story of his drops in terms of altitudes traversed; an altimeter strapped to his wrist to advise him when to pull the rip cord; an automatically started stopwatch to time the fall; a motor-driven motion-picture camera to record the number and direction of spins and tumbles; and a small voice radio, set within his helmet, to permit him to talk with friends waiting below. The results of all these experiments have been vital to thousands of men now in the service of Uncle Sam, and thousands more who soon will enter the branches having to do, in one way or another, with flying and parachutes.

As a result of extensive experimentation at the Dayton research station, medical authorities have come to certain impor-

tant conclusions, which are: 1. Were it not for fear and excitement before the jump, there would be little or no mental reaction. The fear of falling, one of man's oldest known inborn phobias, can be abolished only by constant practice in parachute jumping and strongly exerted control. Many of the aircraft accidents which result in fatalities are largely traceable to the fear of the pilot to jump, which, in turn, forces him to trust to his disabled ship rather than to the tried and proved parachute.

2. During the free fall through space only one abnormal physical sensation has come to light, that of a very gentle, evenly distributed, superficial pressure on the downward surface of the body. This is a phenomenon which has thus far puzzled the medical authorities. It would normally be expected that there would be a rush of air around the body, with the sensation that strong winds were blowing, but actually this has not proved to be the case. Airplane designers and other students of wind flow have proffered the theory that because of the fairly streamlined shape of the human body, a turbulent airflow is produced around it which causes small eddies and air currents, instead of the expected blast. Then, again, they believe there may be a static air condition about the body which prevents a flow of air in contact with the body, and that the pressure in this area is actually a vacuum. Be that as it may, the apparent phenomenon is generally recognized as being one of the contributing causes which truly makes a parachute jump a pleasant sensation.

3. The chutist's hearing is affected in the descent, for while he can hear to some extent, experiments have shown that during the drop the noise of a score of airplanes in his immediate vicinity is imperceptible, and the reason for this has not yet been determined.

4. Depth perception, or acute recognition of distances, is affected to such an extent that when the falling man is some 1900 feet away from earth, he must be traveling downward at

the rate of about 100 feet a second before he can perceive that he is actually moving toward it.

5. Despite the fact that hearing is affected during a fall, the eyes continue to function properly to the extent that they serve to maintain the sense of balance. Although it would seem an impossibility to an earthbound layman, many a parachutist has recounted exactly the number of somersaults in air before his parachute opened.

6. Delayed parachute jumps not only are safe, but are recommended in many combat tactics. All too many times since we went to war we have read how our aviators have been machine-gunned by enemy fliers as they were parachuting to safety. Since, therefore, it has been conclusively proved that a man may tumble through space for a distance up to 30,000 feet without losing consciousness, and since it has been shown that he retains sufficient mental faculties to pull the rip cord after long free falls, there is added safety in delayed jumps, particularly if there is a possibility that he may be shot if he immediately opens his chute.

On these six premises, as well as on the results of other studies, the medical authorities have hoped to be able to instill greater confidence in the parachute troops. It has also been discovered that a tumbling man falls slower than one who falls straight, and this accounts for the jackknife dives that many experienced jumpers employ before pulling the rip cord. When a man is forced to bail out of a ship traveling at about 250 miles an hour, he will, if he uses the free-fall type of jump, slow down to 120 miles an hour after he has left the plane, at which speed it is far safer to pull the rip cord. This physical phenomenon has been known to scientists for years and is due to the friction of the object falling through the air.

With all this and much more behind the military development of parachutes in this war, it is not surprising that the

training course of the paratrooper has been planned to incorporate the elements it does. Little by little, step by step, the novice is led through the basic principles of parachute jumping without realization of what is happening to him. He is toughened physically, particularly in the muscles and nerve control that he will need most. He becomes so familiar with the physical aspects of the parachute that he can fold it, manipulate it, make it do his bidding awake, in his sleep, in the dark and the daylight. His mental preparation has been no less strenuous, for he has been led by easy stages into accustoming himself to unusual heights, into seeing the world from decidedly unorthodox angles, such as his suspension from Ryder's Death Ride, from the parachute tower. Always, during every minute of his training, he has been kept aware, usually by indirect methods, that he will not be coerced, forced, drugged, bullied, or in any other way made to take his first parachute jump, nor even the preliminary training in the tower, if he doesn't want to. That very attitude on the part of the training officers, and the insistence with which it is brought home to the trainee, materially helps to build up his own ego, his own confidence in himself. He develops an attitude of belief in his ability to do things that formerly he would never have believed possible. He becomes a superman in his own mind, and having thought himself into that state of mind, he proceeds to be one.

This phase of the training increases in tempo and intensity until, as many have afterward said, the novice is so finely trained for that first jump that it is more of a thrill than a hardship. One new Marine paratrooper who was making his first jump from a plane floated downward in good form, hit the ground according to Hoyle, rolled nicely, scrambled to his feet, and said to the sergeant who was right there on the ground to help, if necessary: "God, sergeant! That was swell! When can I do it again?"

So highly developed, in fact, is the feeling of elation, the sense of ability to perform the impossible, that it is often not until the fourth or fifth jump that mental reaction sets in and a man begins to realize fully the risks involved. The novelty has worn off by then, but in its place has come a determination born of experience and the knowledge that if a man flunks now, he really is a sissy, for the worst of the program has been surmounted, and from this point on he becomes more and more of a veteran.

It is not surprising, therefore, that on the eve of the first jump we find our training platoon somewhat nervous and jittery, despite the rigorousness and thoroughness of their mental, physical, and psychological preparation. The big moment has almost arrived, and tomorrow they will arise before dawn, don their jumping togs, insert their bodies into two packed parachutes, the reserve as well as the jumping chute, and climb aboard a plane for their first thrilling leap into space.



Standing at attention before the first jump, a fellow gets pretty interested in what his pals are doing up there in the sky.

## THE FIRST PARACHUTE JUMP

IMAGINE FOR THE moment, that you are a member of our training platoon of paratroopers, that you're standing with the rest of the boys near a huge, gray airplane. You, too, may shiver a bit involuntarily, and it may be the chill of the early October dawn, or perhaps the thought of what lies ahead. It's a relief when the order comes to climb aboard, and as the great ship taxis across the field, there is a fleeting sensation of "Well, here we go. Too late to back out now."

Some hands may be clammy. Tiny beads of perspiration may cling to forehead, upper lip, trickle damply down the spine. The plane roars on through space, gaining the altitude necessary for the first actual parachute jump you've ever made. The seats of this former passenger airliner have been removed, as have all the rest of the civilian trimmings. You and eleven other men are seated cross-legged in two rows on the floor, with aisle space down the center. Back in the tail of the ship stand Lieutenant Thompson and Sergeant Wycoff, jumpmasters for this trip, each with a hand on the static cable which is tautly stretched near the ceiling from one end of the plane to the other, and each displays an attitude of unassumed, "cold-jug" confidence which all the new paratroopers wish they could attain—and hope, some day, to accomplish.

Across the aisle is Buck, the big Nebraska farm boy who

joined up with the parachute troops the same day you did. Always calm, unruffled, and stoical through the many hectic weeks of strenuous training that have preceded this all-important moment, Buck now holds out a hand to demonstrate publicly his steady nerves. It wavers perceptibly, and everyone laughs, including Buck. Just ahead, slight, wiry Tom, splendidly bronzed by his native Florida sunshine even before he came to Fort Benning from his work as a lifeguard, drawls a wisecrack which is drowned out in the roar of the motors. But the inevitable tension of the take-off is momentarily eased and you draw a cigarette from its pack and light it with fairly steady fingers. In fact, you're proud of that little exhibit of nerve control.

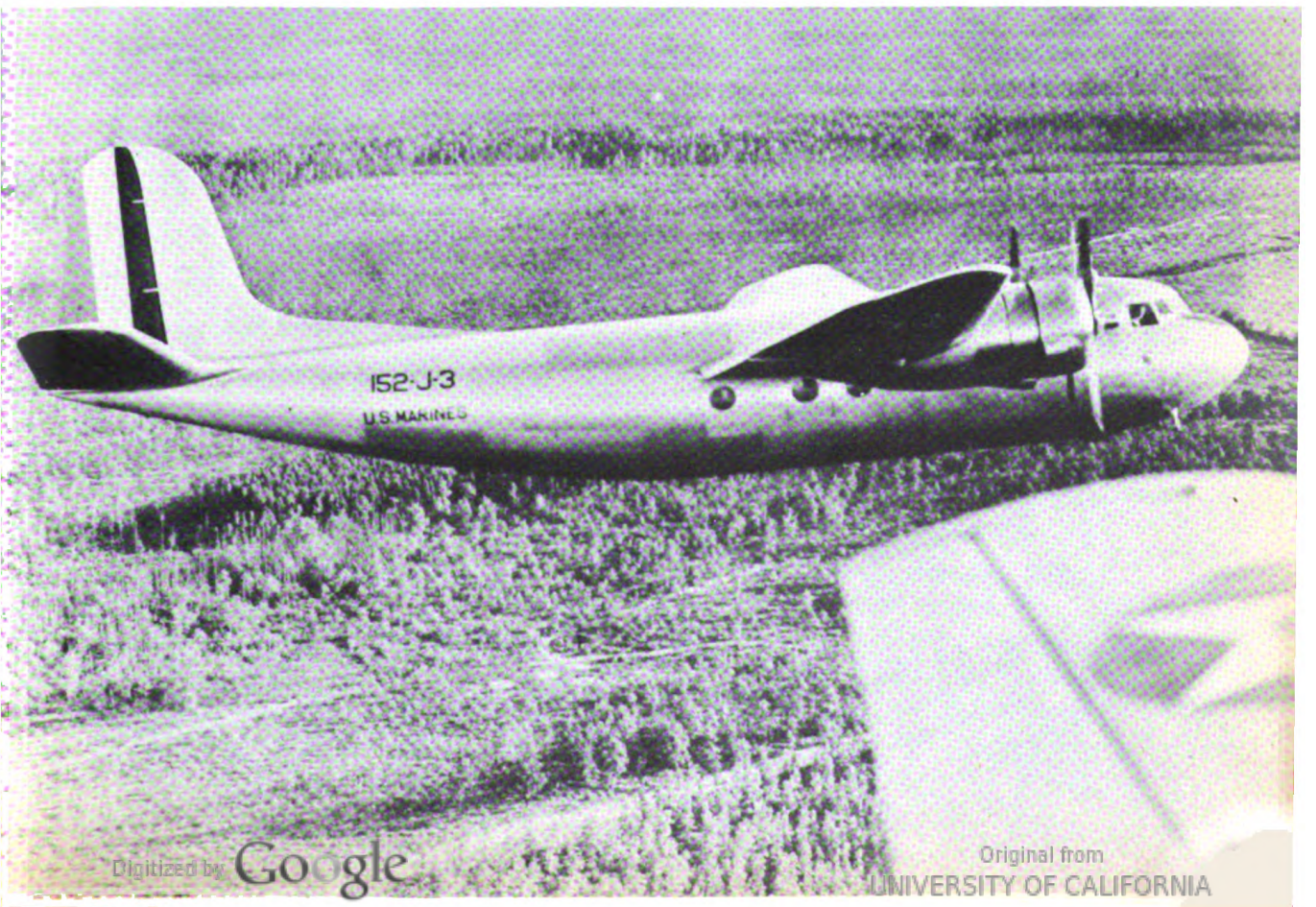
You're not afraid. It isn't fear, and somehow you know the rest of the men feel the same way. There's a nervousness, yes, but it's not quite like any nervousness ever known. Memory plays a queer flashback trick to the first time you ever took a high dive. It was 45 feet from that platform to the water, but standing there indecisively and gazing down you thought it looked like a thousand. You were nervous then, or maybe a little scared, but you knew you'd go through with it. It would be easier to leap head-first into 45 feet of space than to climb back down that ladder—with a dozen pairs of friendly but critical eyes boring into the middle of your back. A fellow must remember to do many things in the brief seconds it takes to dive from 45 feet, and you wondered if you would. Keep the head up; legs and arms out parallel with the horizontally falling body. Then, at the last second, duck the head and the body would obediently follow; lock hands tightly over the head to break the force of a smashing fall against the water, and in you go. You'd never taken a high dive, but you'd been told all these things and had seen it done scores of times by experts and by those not so expert.

There's a lot of similarity, you cogitate, between the first high



Above: Ten good men and true, about to take the most important ride of of their lives, for they'll come down by chute, not by plane.

Below: A huge Marine training ship circles the field. Soon paratroopers will pour from the jumping port on the other side of the plane.



dive and this first parachute jump. You've seen it done scores of times by experts and non-experts, and most of them have come through all right. Once again you're on a high platform, but this one moves swiftly through the air and it's now some 300 times higher than the one at the old swimming pool. And this time there are eleven other fellows for company, each of whom, you sort of hope and know, has pretty much identical feelings. Of course, a fellow can't climb back down the ladder if he decides he doesn't want to jump out of the plane, but he can always say he has changed his mind about leaping into space from the jumping port in the rear of the ship—that is, if he has the nerve to say it! You and any of the rest of the boys who are so minded can refuse to jump, for that's the privilege of the paratrooper who is still in training—but, like the high dive, you know you'll go through with it, and so will every member of this squad.

You know, too, that in parachute jumping as in diving, there are many things to remember. There must be an actual jump, not just a simple step out. Propel yourself with all your might from the sill of the jumping port; then feel gently for the rip cord of the reserve chute, cradled at your chest like a baby, but don't pull it. Not until after you've counted slowly: "One-a-thousand . . . two-a-thousand . . . three-a-thousand," for meanwhile the static line on the troop chute, the one packed in a canvas container on your back, will have gone into action. Soon will come that welcome jerk that so forcibly indicates the regular chute has opened, and then you have nothing more to worry about except the technique of landing properly.

There's something splendidly reassuring about that stout 13-foot strip of two-inch canvas webbing, known as the static line, which is such an all-important factor in parachute jumping. It is so mechanically perfect in its operation that it builds up a comforting feeling of safety and confidence. While a fellow



“Thumbs up!” means they’re ready for that first jump, even if thumbs are a bit jittery and smiles slightly wry.

knows he must be prepared to pull the rip cord on the reserve chute, if necessary, his confidence in the static line, because of its past performances with hundreds of other novice jumpers, is such that he really doesn't expect to have to do it.

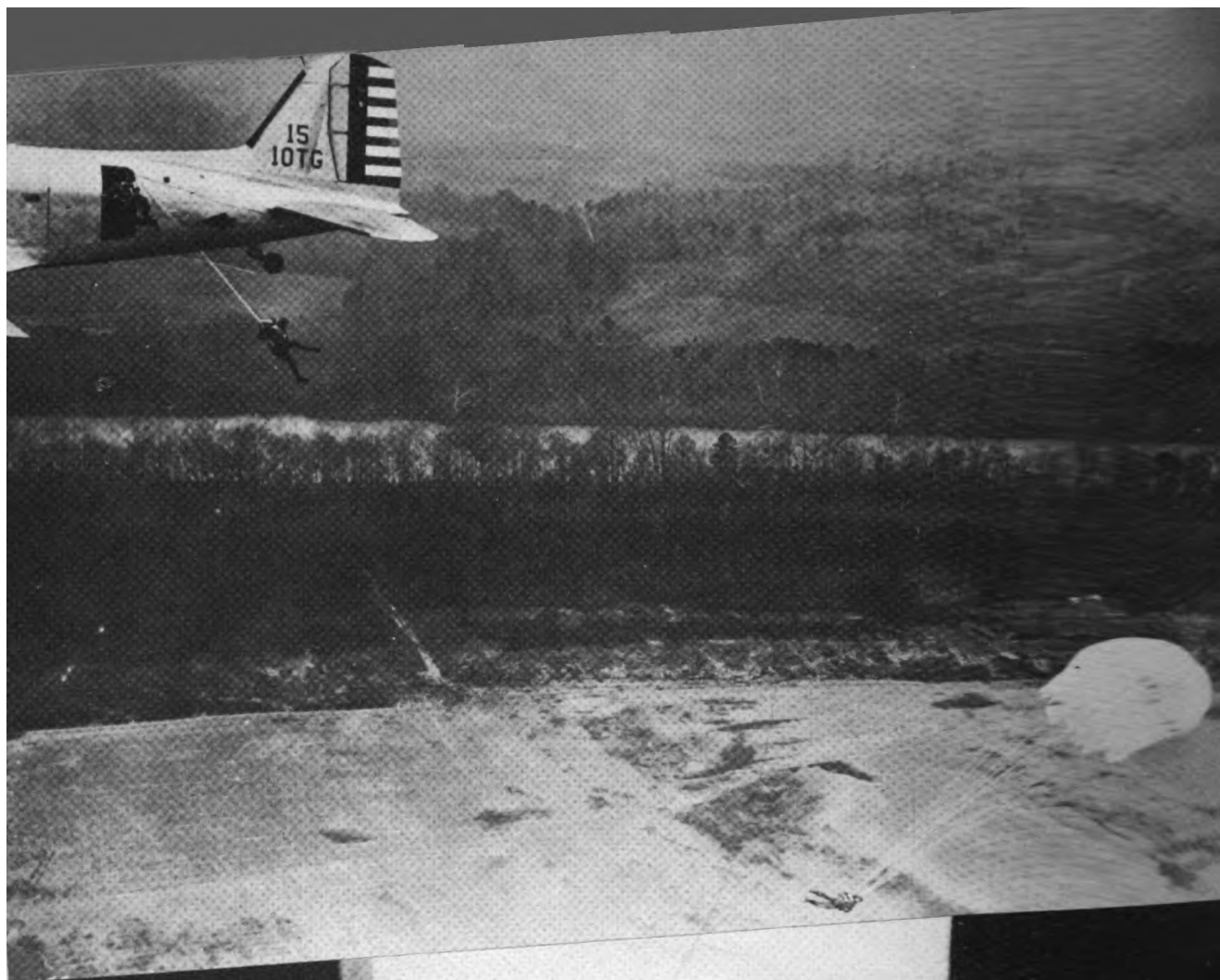
That meticulously packed troop chute reposes on your back. The static line is folded against itself several times and is held in place on the outside of the pack by loops of elastic webbing. One end lies over the left shoulder and terminates in a large metal snap which, at the proper command—to be shouted by Lieutenant Thompson almost any moment now—will be hooked onto the static cable which is strung lengthwise of the plane. The other terminus of the static line acts as a rip cord. When you jump from the plane, the static line, being securely hooked to the cable, will tear open the fastenings on the pack so the pilot chute can perform its job of hastening the opening of the comfortably big 28-foot troop chute. In other words, the static line is a mechanical rip cord that makes it unnecessary to remember to pull the manually operated rip-cord ring—and there's a lot of solid satisfaction in that!

What with being so busy thinking so fast these past few minutes, you haven't realized that the plane has made its preliminary pass over the jumping field. It has circled and is now coming back for the jump. The tenseness increases again, and with a rapid tempo you crush out the half-smoked cigarette. Buck reaches across the aisle, taps your shoulder, and makes a sweeping, horizontal gesture with his big hand as though to impart the thought: "This is nothing, kid! Come on, let's go!" Good old Buck! A good man to have along. And then—

"Stand up!" shouts Lieutenant Thompson, and the jump-master's warning command snaps everybody out of that haze of indeterminate meditation. Legs are hastily untangled, men clamber to their feet and take their places in single file under the static line. Action is a relief, and everyone feels better.



They're off in the plane for a practice jump—and they don't look too worried about it, for they're veterans now.





*Above:* Going down! With Lilliputian pine trees and roads that look like strings, 1000 feet below. The container may hold ammunition or other supplies.

*Upper left:* First one's out—second is away—third is coming. Here is how the static line works.

*Lower left:* Out of the jumping port and into the blue. Note the static line one end of which is fastened to a cable in the plane, and which has already begun to unfold. In another second or so it will rip open that pack and the parachute will go to work.

"Hook up!" barks the Lieutenant, and in unison twelve snap-fasteners are hooked to the static cable. Left fists grip the clasps until bronzed knuckles whiten. Sergeant Wycoff carefully inspects each clasp, pats each shoulder reassuringly. Here it comes! Another second or two and you'll—

"Go!" shouts the jumpmaster above the roar of the plane's motors, and he slaps little Billy, first man in line, on the back and out of the jumping port. Swiftly the next man steps up—he's gone!—the next, and the next—you are number seven, lucky seven, you hope. Tom is just ahead of you, and you feel Buck's big bulk pressing gently from behind. Another—then Tom—and you're at the jumping port—with Lilliputian pine trees and roads that look like strings a thousand feet below!

You jump straight out, pushing with both hands and feet in order to stay as upright as possible. The propeller blast strikes your body, swings it half around to face the rear, and out of the corner of one eye you see the plane's tail passing overhead. In those next few seconds your mind works faster and with greater clarity than you had ever thought possible—due, probably, to the weeks of intensive training for this very moment. There's a mental flash of the descents from the 250-foot jumping tower, strapped in the chairseat with Buck, then with the free chute, but those parachutes had already been opened for you, like umbrellas on giant steel ribs. This business of falling, falling through vacant space, you suddenly realize, is vastly different.

Below you there's a fleeting glimpse of a chute blossoming into full white bloom. "Must be Tom," you think. "Lucky stiff! Gee! I'm supposed to count . . . one-a-thousand—oh, gosh, is it going to open? . . . two-a-thousand . . . well, here goes for that reserve chute . . . three-a—*uumph!*"—and that last terrific grunt comes involuntarily and forcibly from your throat, for your chute has opened successfully.

152-J-3

U.S. MARINES

Those who leave the earth in a plane do not always return to earth in it. Like these Marines, who are about to make their first jump, they come back in a parachute.



Jumpmasters stand at the open port of the ship, now high in the air. The neophyte jumpers patently display varied emotions as each thinks of what lies ahead.



Folded static lines across the door frame indicate most of the men have jumped, with the last three about to take the first thrilling leap. The jump-masters' hands rest lightly over the static cable and the static line snaps to make sure the mechanics of the jump function to perfection.

Although you've been yanked around plenty by the training parachute descents from the tower, and although at the time it seemed nothing could be worse than the body punishment involved in the hangman's drop, the treatment received when that parachute canopy abruptly went to work was like nothing ever experienced before. Despite the hours and hours of rigorous training and all the ingenious devices that were used in preparation for this bump in midair, the almost instantaneous reduction in downward traveling speed from about 45 miles per hour to between 15 and 20 miles an hour produces a terrific shock. That fleeting sensation that your skeleton is about to slide feet-first out of your body returns in full force.

Surprised and slightly dazed at the short, free fall and its sudden ending, you're nevertheless back to normal in an eye's twinkling—as normal as can be expected when, for the first time in your life, you find yourself suspended some 900 feet above the earth by 28 silken cords that funnel out from shoulders to the fluted edge of a gleaming white canopy which hides the sky, and Buck and the other jumpers above, but which is floating you easily and gracefully downward. Actually, the sensation is one of being poised motionless with a gentle breeze blowing up the nostrils and whistling softly past the ears, while the ground comes up to meet you.

It's a grand and glorious feeling to realize that your first parachute jump has been started—that despite anxious moments, clammy hands, and nervous premonitions you've actually jumped and everything's under control. With a quick glance down at Tom, floating quietly below, you let out a banshee yell of victory, and answers come from the rest of the gang, above, below, and all around, testifying that they, too, literally and figuratively feel on top of the world.

But the ground is coming closer and you recall you have



The jumpmaster cried "GO!" and they were gone, leaving the plane less than a second apart.

another job ahead, to land safely. Remember the hundreds and hundreds of practice jumps from the platform? Now is the time when all that tedious, muscle-hardening physical training will pay big dividends. Remember the instructors said that, barring heavy winds and brutal ground conditions, the shock of hitting the earth from an actual parachute jump would be very much like the one involved in a leap from the higher platform? Remember, too, all the rest of the instructions about landing with equal force on the balls of both feet, about assuming the posture of a standing-up monkey so the natural spring of the legs will function best, about keeping the body not too tense nor too relaxed? And then, as soon as the feet hit the ground, don't forget to pivot in the direction of the wind, which is very mild this early morning. That will place you in the squatting-rotating position from which you can go through with the circus tumbler's roll so persistently practiced. Remember all those things? Well, get ready to put them into practice, for you're almost down!

A couple of members of the ground crew are running toward you to be ready with a helping hand—just in case. To break the fall you reach up, grasp the shrouds with both hands, give a mighty tug upward, and do a splendid job of chinning yourself. Toes wiggle anticipatorily in the soft leather of high-top shoes and—ker-thump! You're down! You pivot, you ease down onto your buttocks, and with a continuous rolling motion in the general direction of the parachute, now collapsing on the ground, you do the back somersault, and end up by scrambling to your feet. They sting slightly and you whacked your head a bit on the ground as you went over, but you don't mind.

You've done it! You've done it! You've actually made a parachute jump! You're a "cold-jug!"

And, as after that first, hesitant high dive of bygone years,



Back to earth—and back with a feeling of accomplishment such as they never knew before, these Marines will be anxious to try it again and again.

there's a feeling of great exhilaration, of accomplishment. You've found you *can* do it. A strong sensation of personal power surges all through your system; you're fired with youthful enthusiasm and you shout across to Buck, who is on his feet unscrambling himself from his harness, "Hey, Buck! That's fun! Let's do it some more!"



“Hey! Parachute jumping is fun! Let’s hurry and do it again!”

## BATTLE PRACTICE

THE TREMENDOUS emotional build-up that increased daily for the first six weeks of training served, along with a generous amount of inherent and youthful curiosity, as a sort of mental hypodermic to carry the new men through their first thrilling leap from a plane. In most instances these influences will be powerful enough and will have had sufficient momentum to extend over into the second parachute leap. As a further stimulation to jump the second time, in case a stimulant is needed to offset a possible mental and psychological let-down after the primary experience, each man has a feeling that if he doesn't make his second attempt his buddies are liable to believe he was frightened stiff by the first.

It should always be borne in mind, however, that until the paratrooper's wings are awarded at "graduation," he still is technically in training and the prerogative to refuse to jump remains his. The time will come, after all tests have been successfully passed, when refusal to obey orders to jump would be considered in the same light as disobedience of any other military order, and it might mean court-martial and perhaps a long visit to the guard house. As for that build-up prior to the initial jump from a plane, should anyone ever attempt to tell you that the men who are training to become members of the United States Paratroop Battalions are drugged, needled, or in any other way doped preparatory to the first leap, mark it down

either as a case of misinformation or as an attempt at derogatory propaganda. The only incentive is a mental one, a perfectly natural human reaction, which is duplicated daily in many phases of civilian first experiences.

After they have finished the course and, as veterans, are in a position to look back on their first half-dozen parachute descents, most of the paratroopers will affirm that the third, fourth, or even fifth attempt was the toughest. By then the excitement of the thing has died away. Old Man Curiosity has been satisfied, and each soldier has proved to himself and to his fellows that he can take it, that his nerve is good, and that he has the requisite amount of guts to become a paratrooper. And just about the time parachute jumping reaches this stage of the commonplace there comes a vivid realization, heretofore hidden behind emotional excitement, that this business of being a fighter from the skies is not only a tough and dangerous job, but often a painful one.

Strangely enough, as the training platoon becomes more accustomed to floating through space, as subsequent departures from the security of the plane to drop a sheer thousand feet worry the boys less and less, as they acquire more respect and consideration for the landing itself, the injuries increase. These consist mostly of fractures, sprains, and torn ligaments, more often below the knees than above. This situation, however, is constantly improving and today it is almost completely under control as a result of months of intensive research and study. In the early days at Fort Benning, out of the first 4300 jumps, there were 111 hospital cases, 28 of which were fractures. In the following six months, thanks to corrective measures, serious injuries were cut from 40 in a thousand to only two.

Possibly the cause of the increase in injuries at this stage of the game is comparable to the reason that grown-ups become seriously hurt in a simple fall, whereas little children can go



They float through the air with the greatest of ease, but all landings are not simple, for some are practiced over forests and rough terrain.

through the same tumble and come out with a mere scratched knee or skinned elbow. In other words, the paratrooper, having found that he can be hurt unless he assiduously puts into practice *all* he learned about jumping in the early days, unconsciously becomes fearful of the shock of actual landing and forgets to relax properly, forgets to land on the balls of his feet, or neglects some other important phase of his training. Carelessness, too, possibly brought on by a case of overconfidence, as in any other phase of life, can bring about injuries.

But regardless of individual reactions to parachute jumps subsequent to the first, there is no possibility of a permanent let-down either in general training or in the thrills and excitement of learning to be a paratrooper. Once over the hump of three solo and two mass jumps, the boys feel like veterans and settle down as a matter of course to jumping any time, anywhere. Meanwhile, they are introduced to the several intensive courses which thus far have been but lightly touched on. These include the art of accurately shooting all manner of firearms, the neat tricks involved in handling deadly high explosives, a thorough understanding of geography, topography, and communications, and a working knowledge of meteorology and certain important constellations in the heavens. All these matters have not been given more than a cursory study up to now, for unless a man can qualify as a parachute jumper, there is little need of wasting time and money in teaching him things that would not be of primary value in some other branch of the service.

To obtain experience in practical application of these arts and sciences, sorties are worked out for task forces; commando-like raids for sabotage purposes are carefully planned in all their little, but important, details; and entire campaigns involving thousands of men in many branches of service are conceived,



Some are down and some are oscillating rather badly. They'll have need of the "tumbler's roll" when they land.

diagrammed, and studied. From aerial photographs and large-scale topographic maps, sand models of sections of territory are carefully built to scale. Roads are laid out, villages and towns are marked by tiny wooden blocks. Forests and their cleared spaces are indicated by planting handfuls of twigs. Telephone and power lines, communication centers, strategic spots for sabotage, and water systems are all shown in their relative merit from the military viewpoint.

With the model of the sector to be attacked before them, the platoon receives lectures in paratroop tactics. They learn how they must cooperate with other branches of our fighting forces. In an air-borne assault on strong ground positions, for example, some military authorities hold that there are four distinct phases, with each phase covering a specified area behind, in front of, or contiguous to, the heavily held and well-fortified position of the enemy. The first phase will be inaugurated by both dive bombers and horizontal bombers in an effort to soften and reduce the anti-aircraft and other ground defenses in the strongest portion of the sector to be attacked. This would usually mean an intensive bombing operation which might last for several hours, but immediately after the enemy is presumed to have suffered seriously from this part of the attack, phase two begins, with troop-carrying gliders towed by powerful planes to a strategic point and released. They will glide swiftly down to areas behind and beside the strongly fortified sector, these areas having been predetermined by studies of aerial photographs, maps, and the sand-box models that resulted therefrom.

Air-borne troops are not to be confused with the paratroopers, for the former are specially trained infantrymen who are transported to their destination by glider or transport plane, or both, depending on available landing facilities, and are never dropped by parachute. The air-borne soldier, like the paratrooper, is lit-



Above: Air-borne troops of the Marine Corps load a jeep into a plane.  
Below: Marine Corps air-borne forces load machine guns and ammunition.



erally armed to the teeth and has been trained in many of the same tactics. These troops can only be utilized, of course, in instances where suitable landing areas for gliders or planes are available. However, it is possible for the glider-borne troops to carry with them heavier armament than do the parachute men. Mortars, heavy machine guns, anti-tank guns, light field-artillery pieces, jeeps, and other high-powered instruments of destruction have been toted in gliders and troop ships, along with the men to man them and plenty of ammunition to shoot.

Coincident with, immediately before, or immediately after the landing of the air-borne troops, depending on the tactical situation, come the paratroopers. The parachuting soldiers are sometimes landed in the same area with the air-borne infantry forces, sometimes in another sector in order that enemy forces may be caught between two fires. Between the two contingents of men from the sky and the weapons which they brought with them, or which will have been dropped by parachutes, the enemy forces are reduced and cleared away to the point where transport planes can effect a satisfactory landing.

Throughout all these maneuvers it is necessary that the air force maintain an umbrella of fighter planes overhead to ward off any attack by enemy strafing planes and to afford protection for the increasing number of cargo and troop-carrying ships which inaugurate the third phase of the attack. Quickly following up the seizure of landing fields and all possible areas where more gliders can be brought in, the third phase is largely one of reinforcement in which more and more fire power and man power are brought to bear. Cargo planes can transport engineer troops to help prepare for the inevitable enemy counterattack. More planes land and unload 37-millimeter and 75-millimeter anti-tank guns, ammunition, and the smaller tanks and armored vehicles. Strategically spotted, these ever-increasing air-borne forces will have sprung into immediate action against the



Above: Although the air-borne Marines, like their counterparts in the Army, do not jump to join a vertical envelopment, they wear parachutes for emergency purposes when engaging in maneuvers, but remain in the troop transport plane until it has landed.

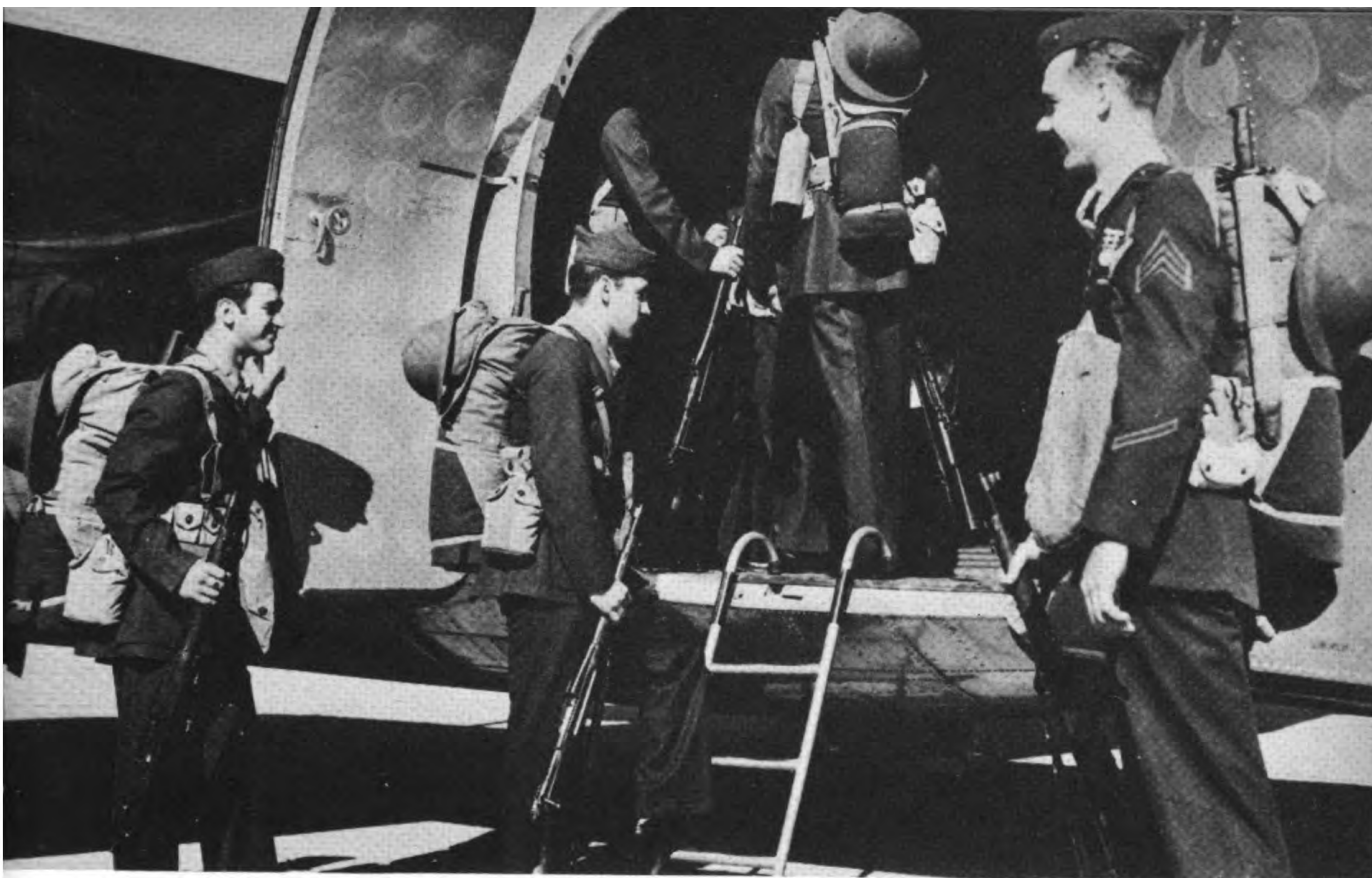
Below: "Devil Dogs," front and center—and into the body of a huge transport.



enemy's rear, his flanks, or other vital points and will have weakened him preparatory to a frontal attack by mechanized ground forces. This ground attack by the Armored Division, with all its mighty engines of war, comprises the final phase of an attempt to overwhelm an enemy position which was inaugurated by an air-borne attack.

Through the aid of maps, photographs, blackboard diagrams, and the sand-box models, the paratroopers learn that timing to the fraction of a second and the utmost in cooperation comprise the essence of success in an attack of this type. They are taught that although much of their fighting will be individualistic, that though they must land literally ready to go into personalized action, there will be instances when their efforts must be directed in the closest coordination with other types of troops. To prepare them for their multifarious duties, squad jumps are practiced in which it is the business of a plane load of paratroopers to get out of the ship as rapidly as possible at as low an altitude as possible commensurate with safety, and, when they have landed, to form combat units which will utilize weapons and ammunition dropped to them from a cargo plane.

By now the platoon has reached the point where parachute descents are pretty common, so the actual departure from the plane in a squad-training maneuver doesn't even raise their pulse beats. They are primarily interested this time in manipulating their chutes so they will all land as nearly as possible on the small section of terrain to which they have been assigned and which has been studied in the sand-box model. Their practice objective is a small and of course imaginary landing field which they are to take and hold until reinforcements come. As the plane passes over the designated area, the signal to jump is given and a dozen men are out of the jumping port in as many seconds, for they now have the business of leaving the plane down to an exceedingly fine point.



Above: With the perfection of speedy air transportation of fighting forces, the Marines have found another method of being "First to fight on land and sea"—and now in the air.

Below: These days, when a big transport plane sets down, it may be just another instance where "The Marines have landed and have the situation well in hand."





*Above:* That old song about "I found one in my cornfield" wasn't written about paratroopers, but there's no telling where these fellows will turn up, and it doesn't take them long to go into action, wherever they land.

*Upper right:* In these maneuvers the paratroopers are down, out of their harnesses, and already engaging the "enemy" in the distance. Air-borne troops have been landed almost simultaneously by transport plane and are running to back up the men from the sky.

*Lower right:* That dark object on which the two troopers in the center are concentrating is a rolled pack of guns and ammunition. The lad just landing at the left will join them, and in a second there will be more men on the firing line at the right.



The sergeant in charge of the squad, easily distinguished by a colored parachute, jumps first, and as he floats to earth the rest of the men direct their chutes to follow him as closely as possible. Immediately upon landing and detaching themselves from their chutes, the squad forms smaller units, each of which will make it their job instantly to recover one of the several cargo chutes which have been following them down, and which will reach the ground only a few seconds after the men have done so. Two or three soldiers, however, have jumped from the ship with parts of a light machine gun, as well as many rounds of ammunition, strapped to their bodies. In the twinkling of an eye the machine gun is set up to offer at least some ground protection to the rest of the squad until they, too, have secured their arms from the cargo chutes.

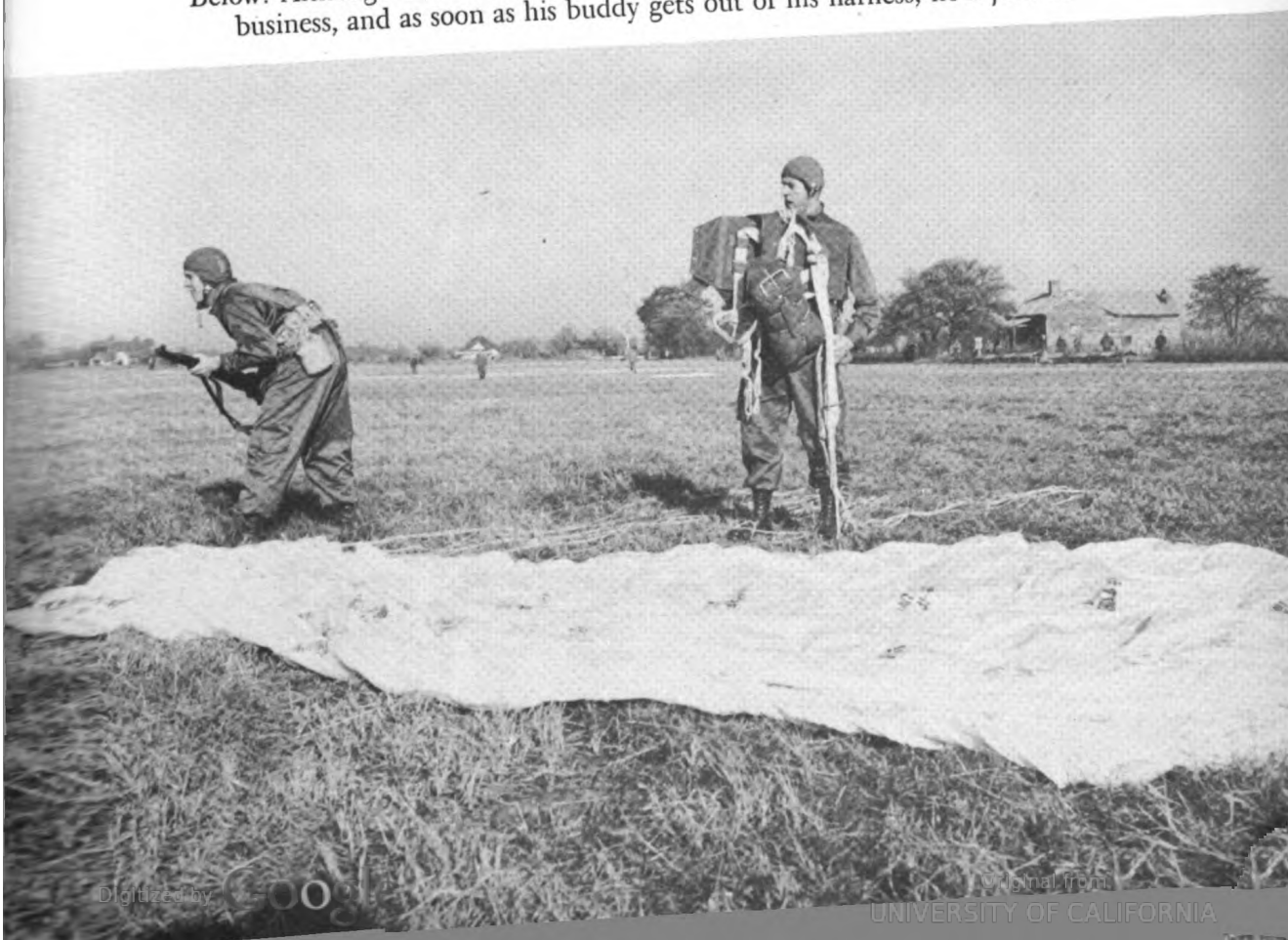
Side arms, grenades, and even specially designed containers of TNT are carried by the paratrooper in actual combat. His rifles, other machine guns, and ammunition come down in the cargo chutes. These weapons are wrapped in heavy, canvas-covered, blanket-like rolls, usually four guns to a roll, together with hundreds of rounds of ammunition. The ends of these padded canvas containers are circular, with a canvas rim which slips over each end of the roll, like the cover of a cylindrical coffee can, and they are fastened to the outside of the roll by heavy metal snaps. The instant one of these containers hits the ground, four men pounce upon it, one man at each end to loosen the snaps, and the other two beside it ready to unroll the blanket, so that each can hastily grab a rifle and his ammunition.

Such must be the cooperative work, both of the individual paratrooper and the squad to which he belongs, that all men will be fully armed and ready to move on their objectives within a matter of seconds after they have hit the ground. While part of the troops will endeavor to take over the landing field, others have been designated to cut telephone wires, some will blow up



Above: With cargo chute and parachutes these light machine gunners have dropped in a field, spread themselves flat, and are ready to let the "enemy" have it.

Below: Although this is only play-acting war, that chap at the left looks like business, and as soon as his buddy gets out of his harness, he'll join in.



a strategic bridge, and still others may effect a commando-like raid on enemy headquarters. The most painstaking plans have been laid prior to a raid of this type, and every man has a definite place and a definite duty which, if the raid is to be successful, must be adhered to with the utmost speed and dispatch. Much of the effectiveness of the paratroop forces is based on the element of quick surprise, and therefore fractions of seconds are vital and the teamwork and timing of efforts of these otherwise individualistic fighters is of the greatest importance.

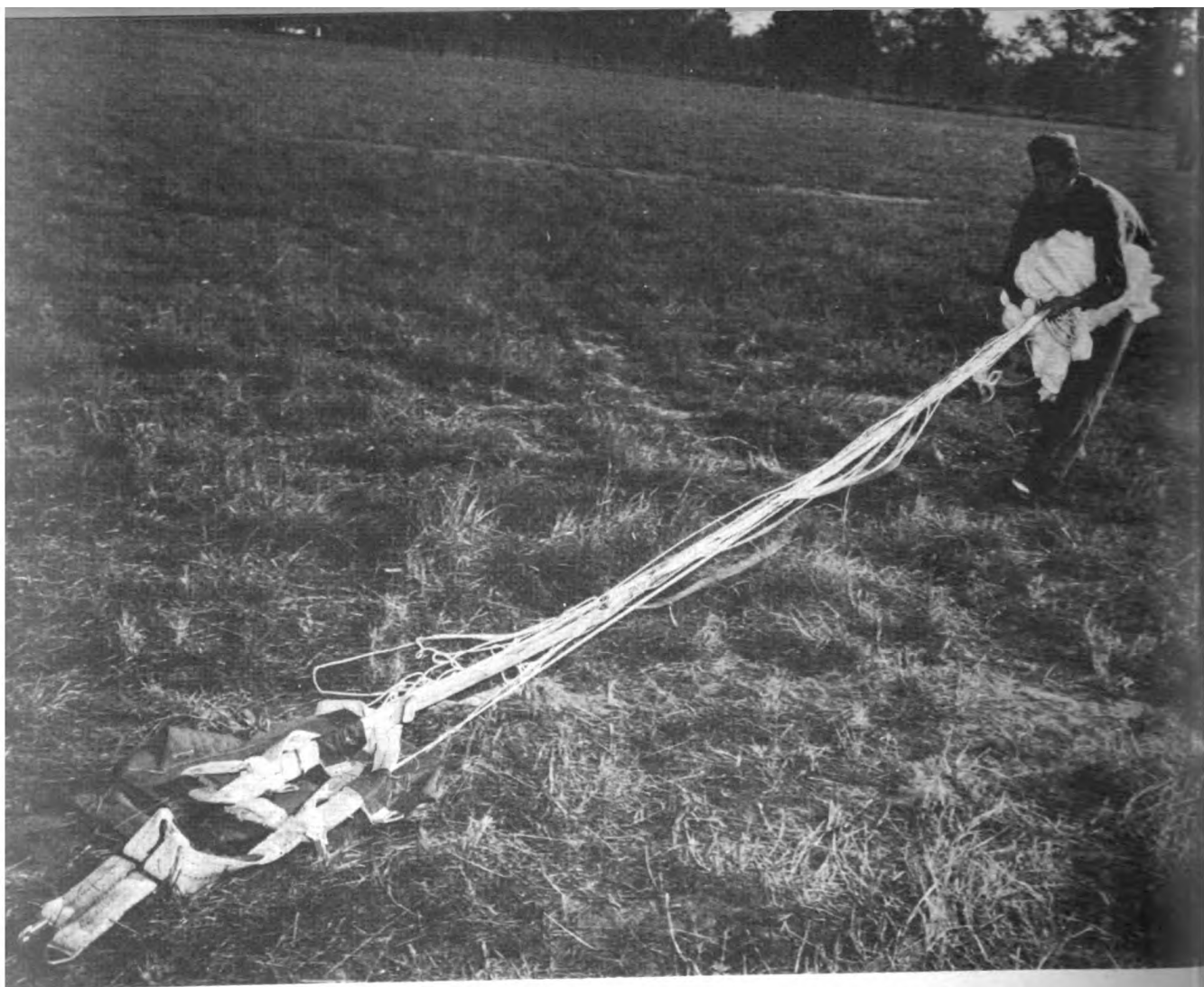
Indicative of how startling and demoralizing an attack from the sky can be is the story of how forty tough and heavily armed young gentlemen of the Marine Corps nearly disrupted the ground maneuvers of some 17,000 soldiers of the 44th Division one day in July, 1941. The 44th Division was on its maneuver area in Virginia, preparatory to the beginning of some sham battle tactics, when the Marines staged their surprise parachute attack on a military airport. Dropping from the skies in three groups of ten, ten, and twenty men, the Marines landed safely while the soldiers looked up in amazement at this unexpected touch of blitz warfare. Staff cars and umpires' cars began arriving at the airport. Colonels, majors, and captains leaped out of their jeeps or command cars and wanted to know what was happening, for to the best of their knowledge no paratroops had been included in the practice maneuvers of the 44th. No one knew just who the parachutists were fighting for, or with, or what. The Marines, however, weren't interested in the fraternal warfare of the ground troops. They were just making a test landing to determine how effective their parachute training had been; and this, incidentally, was the first major use of chute troops in United States maneuvers. It is said the soldiers of the 44th Division were greatly relieved when they found their sham campaigns were not to be disturbed by the unscheduled attack from the sky.



Above: In maneuvers, a parachute trooper, with a simulated grenade in his hand, hustles along three captured soldiers after a surprise attack from the skies.

Below: In this bit of play-acting war the ground, or defending troops, won out, and the armed soldier stands guard over the equipment and the empty containers which came down in cargo chutes.





Above: "After the war is over"—but this is only after the play-war is over—each paratrooper is responsible for gathering up his own paraphernalia. In actual warfare, he doesn't worry about his parachute.

Right: At the designated point of attack in maneuvers air-borne soldiers leave their plane on the run to back up an earlier paratroop attack.





Rapidly into skirmish attack formation go the soldiers from the troop transports, whose business it is to reinforce paratroopers.

## ARMS AND AMMUNITION OF A SKY SOLDIER

IF THE SKY SOLDIER must know his parachute, how to fold it and how to operate it, as he has never known anything else in his life, his knowledge of firearms and his ability to operate them is certainly the thing he will know next best. The paratrooper must be a master at throwing hand grenades; the intricacies of the Tommy gun, the Garand rifle, the .45-caliber automatic pistol, various light machine guns, and even some heavier types of weapons must be as familiar and as certain and simple of operation as his ever-present single-bladed knife of huge proportions. During the first six weeks in a paratroop training camp, great stress is placed on the building up of the physical condition of the men, and while all will have had some work with firearms in their initial thirteen weeks of basic Army training before being admitted to the paratroop camp, there will not have been time in the paratroop school to devote to the intensive use of all the weapons of a paratrooper until after he has passed his jumping tests from a plane. From time to time prior to that the boys will have had an hour or so on the firing ranges in order that they will not lose what skill they already may have acquired. There will also be some chalk talks and lectures on operation and construction of guns, on the safe handling of ammunition and explosives, but the real firearms training comes in the sixteen weeks a man spends in camp after his acceptance as a jumper.

One of the greatest developments of the present war is that concerning the maximum fire power of quick-firing guns. This applies to every weapon from the automatic pistol and the automatic rifle on up the line through the light and heavy machine guns to the heavier-calibered cannon. An outstanding example of the importance of great and continuing fire power is an American Armored Division, which utilizes the prodigious amount of 600 tons of various sizes of ammunition for one day's fire. By way of further emphasis on fire power, armored units of the United States Army are armed with cannon, machine guns, rifles, and automatic .45-caliber pistols. Under these conditions it is not surprising that the paratrooper is a walking arsenal unto himself, nor is it to be wondered at that when fully trained in the use of his weapons and his explosive devices he is, indeed, a man to be feared by the enemy.

Of the .45-caliber automatic pistol, Captain Charles Askins, Jr., pistol marksman, writer, and soldier, has said: "The handgun, it is true, as the tool of a soldier is strictly a sort of back-up weapon, a secondary line of defense, as it were. However, as a weapon of last resort it is dangerously lethal. Far more effective, in fact, than the trench knife or other fighting implement of like size and weight. At close quarters the pistol is many times more effective than the longer, more unwieldy rifle, and in fact is a killing tool without counterpart for the dirty business of hand-to-hand combat. . . . Placed in the hands of cool, courageous men skilled in its use, the .45 service pistol should prove itself a remarkably effective weapon for in-fighting."

It is on the firing range that the paratrooper becomes acquainted with his handgun. He learns how to hold the weapon, how to aim it, how to squeeze the trigger in just the right manner so that its tendency to twist away from the hand is minimized. Stories of the old West probably come back to him as he masters the technique of the quick draw and the rapid fire,

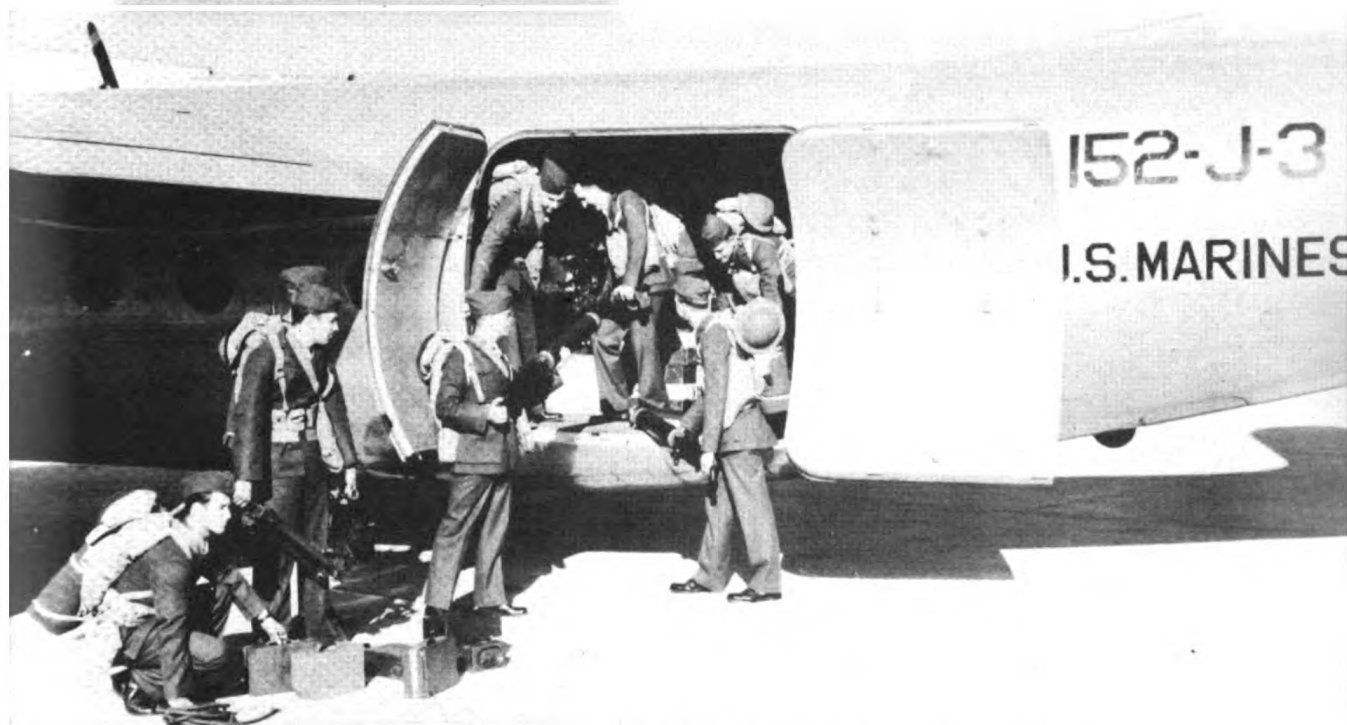


Not pretty, but part of the training in rough and tough tactics for Japs and Nazis.

for the .45 is one of those guns that shoots as fast as one can pull a trigger, spits bullets as long as there are any in the magazine. He masters its insides, too, and can eventually take it apart and put it together with his eyes closed. The bullet itself and the force behind it are something to conjure with, for both speed and striking power have been increased until today the bullet leaves the muzzle of the gun at a speed of 1140 feet a second as compared to 860 feet per second in the last war. It has a muzzle force of 500 foot pounds as against the former 378 foot pounds of muzzle energy. The .45 automatic pistol is certainly something to be reckoned with, and American-made .45's are not equaled in fire power or accuracy by any other handgun of similar caliber.

Another paratrooper weapon which shoots a .45-caliber cartridge identical to that used in the automatic pistol is the Tommy gun, that vicious arm that received such widespread publicity as a "chopper" during the heyday of America's Prohibition gangsters. Its real name is the Thompson submachine gun, and it was developed shortly after World War I by the Auto Ordnance Corporation to be used either as a fully automatic or semi-automatic weapon. It has a short barrel, a removable butt stock, weighs about ten pounds, and can be fired with equal facility from the hip or shoulder, or by holding it in both hands. Ammunition is supplied from 20-shot clips or from drums containing 50 or 100 cartridges. Clips or drums lock into place just in front of the trigger and can be changed in about four seconds. As the deliverable rate of fire of the Tommy is from 100 to 200 shots per minute, it is understandable that a company of well-trained paratroopers armed with these "choppers" can do a lot of damage in a few seconds.

Since the earliest Colonial days the rifle has been the great American weapon. The founding fathers carried their rifles to church, kept them handy by their pews. They prided themselves

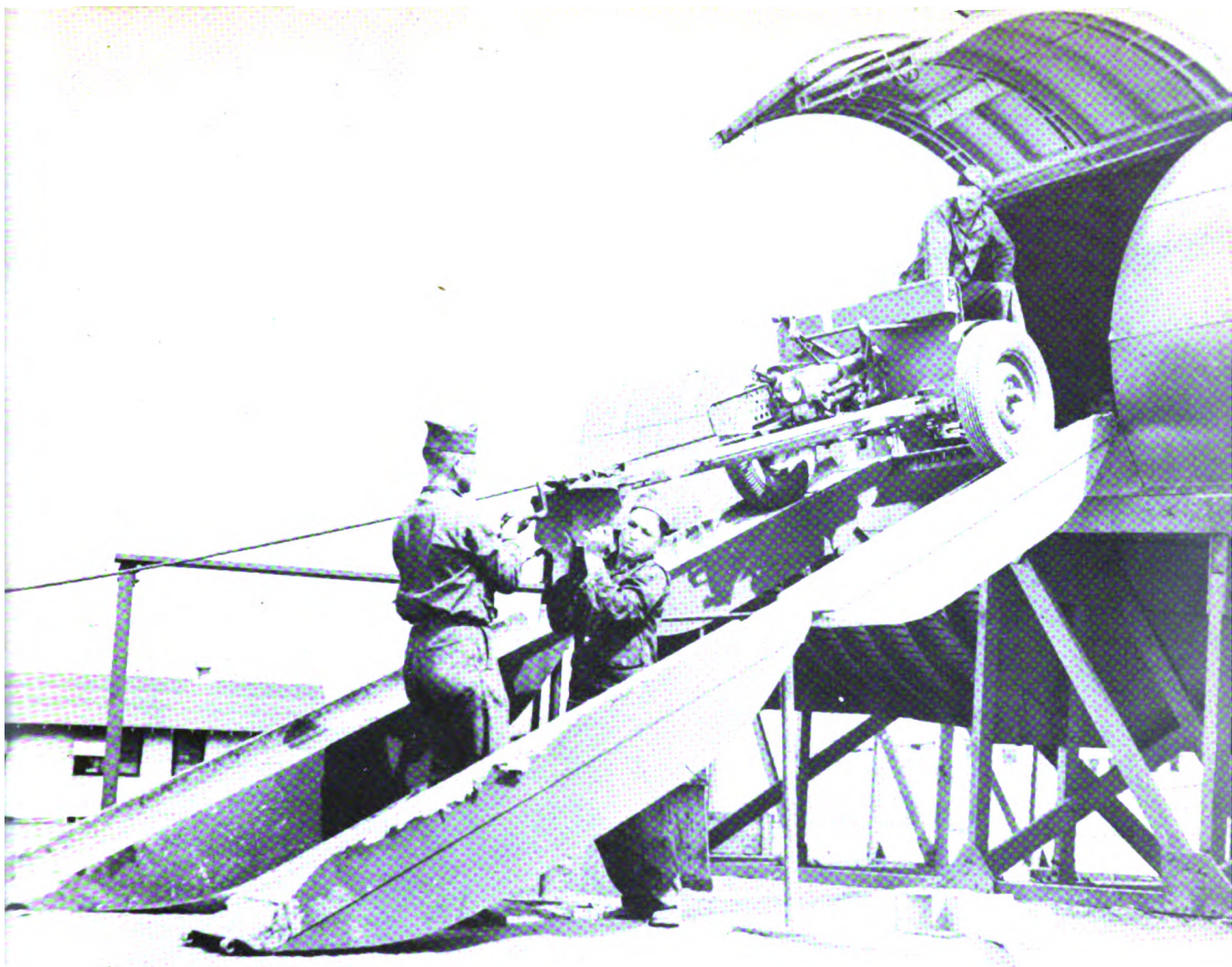


Marine Corps air-borne forces load machine guns and ammunition.

on their ability to shoot straight and quickly, and the gunsmith was one of the most important men of the village. The art of accurate rifle shooting is an American heritage that has come on down to us through the centuries, through the Battle of Bunker Hill, through the winning of the West, the tragedy of the Alamo, the heroism of San Juan Hill, Château Thierry, Bataan, and numberless other battlefields where the power and skill of our riflemen have been felt by enemies. But, like all other weapons, the rifle has undergone radical changes to make it shoot faster, and ever faster.

Out of endless experiments and research has come what is known as the semi-automatic rifle, which is capable of laying down a barrage in much the same manner as the light machine gun. Good as the old Springfield was, and still is, a semi-automatic rifleman can shoot from two to three shots with the same accuracy and in the same time a Springfield rifleman can produce one shot. Of the several semi-automatic rifles produced in response to government request for a weapon of this type, perhaps the Garand and the Johnson are best known today. Both have been adopted by the United States, both are in production, and it was said on good authority some months ago that the Garand was then being turned out at the rate of 1000 a day, and that it was in the hands of every combat soldier who was supposed to have one. These, for the most part, are the rifles with which the paratrooper is armed, and the cartridges they shoot are known as the U. S. .30 SRM-1, powered by 110 grains of powder, and having a muzzle velocity of 1780 feet per second.

Besides being credited with the first design of a parachute, Leonardo da Vinci has also been associated with the first idea of a multifiring weapon, a thing of many barrels, but doubtless an early ancestor of our present-day machine guns. On down through the ages other men struggled with the idea of making a



All manner of guns and paraphernalia travel with the air-borne troops, and practice enables them to load and unload in a hurry.

firearm that would shoot fast and frequently without the necessity of reloading. The many good machine guns of today are the modern answer to that centuries-old problem. They are divided roughly into light machine guns, light-heavy machine guns, and heavy machine guns, and each has its part to play.

The first of these, sometimes called a machine rifle, is designed to be carried by one man, and consequently may be utilized against targets also suitable for rifle use. It is not so acceptable for shoulder shooting as the semi-automatic rifle, but it is very much more effective than a hand-operated, bolt-action repeating rifle. The second, or light-heavy machine gun, is an attempt to combine the characteristics of the extremely light apparatus with the greater endurance and stability of the heavy machine gun. The third category is a further advance in weight, also an increase in caliber, and invariably must be fired from a tripod, as are also most of the light-heavy models. Due to the problems of transportation, paratroopers will utilize more light and light-heavy guns than they will the heavy variety. Machine guns have a deliverable rate of fire varying from 120 to 250 shots per minute, but in the use of all fast-firing automatic or semi-automatic weapons the soldiers are taught not to maintain a continuous stream of bullets in the direction of the enemy, but rather to fire short bursts, then pause and fire another burst. This method offers greater accuracy, conserves ammunition, prevents the weapon from becoming overheated, and enables the shooters better to determine the amount of damage being caused.

After a contingent of paratroopers, together with all possible light arms and ammunition, has been landed near the objective which they are to destroy or capture, they may find that the enemy is more strongly entrenched or dug in than was previously thought. It is then that they will make use of the trench



Semiautomatic rifles and light machine guns are carefully prepared to be loaded into an equipment roll to be dropped from the plane.

mortars, usually the 60-millimeter type. A simple definition of a mortar is that it is a short cannon consisting mainly of a strong metal tube, often steel, which can be propped up at an angle, and from which gas-operated shells resembling small airplane bombs are fired at the enemy. The total weight of a modern 60-millimeter trench mortar is approximately 39 pounds, including the tube, the bipod on which it is rested, and a base plate. The shells for this gun are filled with TNT, weigh about three pounds, have a maximum range of about a mile, and, as can be imagined from their load, are capable of causing great havoc.

It seems strange to realize how the results of certain peacetime pursuits of boyhood sometimes fit young men for war. The great American game of baseball has even made its contribution by teaching accuracy in the art of throwing, and the tossing of a modern hand grenade is not so very different in *modus operandi* from the throwing of a baseball. On the subject of hand grenades it is interesting to note in passing that German soldiers dislike the egg-shaped grenades and greatly prefer the kind known as a "potato masher," which has a body of sheet metal attached to a nine-inch wooden handle. It is said that as baseball is not played on the European continent, the Germans have not developed an inherent ability to throw a missile closely resembling a baseball with any great amount of accuracy. This war has already brought its stories of one-time pitchers on baseball teams who have successfully dislodged Japs from difficult positions with the unerring accuracy of their throwing arm and a sackful of hand grenades.

These, then, are the shooting irons of our paratroopers: the automatic pistol and rifle, the Tommy gun, the machine gun, the hand grenade, and the light trench mortar. Every one of these weapons is capable of tremendous mass fire; every one



Air-borne troops of the ski battalions, like their fellows in the regular infantry forces, can produce jeeps and light artillery from inside a ski-equipped plane and set out to harass the enemy.

must be given thorough study and practice under all manner of conditions. Sometimes the men will put in their hours on the range in low-hanging fog, sometimes in heavy rain, and at all hours of the day and night to accustom themselves to varying light and weather conditions. At some point in the training course, after the many forms of weapons have become entirely familiar, there may be a tactical practice jump near a river. When the men have landed with full packs and complete equipment, they will find that their objective is across the stream and that they will be required to ford or perhaps swim the river in order to complete their mission. Guns will be held high overhead to keep them dry, emergency rations will be tucked under helmets, and all manner of means will be used to keep water from the fighting equipment, regardless of how wet the men become. A parachute soldier fights either dry or wet, cold or hungry, fresh or tired. To enable him to do so, he has it constantly pounded home that he must take the best of care of his arms and ammunition and the rest of his combat paraphernalia at all times.

There are many, many other things the paratrooper must learn about his arms, far more than can be discussed in these few pages. Numberless books have been written about guns, and no one man can ever know all there is to be known on the subjects of gunpowder and the scores of contrivances that utilize it in war. The proper sighting of rifles and pistols alone is a study in itself. The ability to take down a machine gun, rifle, or pistol and clean mud, dust, and sand from all its parts, in the daylight or darkness, is something that must be acquired by one and all. Knowledge of TNT and other types of explosives must be mastered by members of the specialized demolition squads, for it will be their business to handle this treacherous stuff under all conditions, and to see that it doesn't

explode until the right moment and right place have been selected.

Marksmanship will be practiced by the hour on ordinary targets with black bull's-eye centers, on lifelike targets the size of a man, which will bob up unexpectedly from foxholes, from behind trees and bushes, and which will be mechanically manipulated so that they seldom stand still. Much thought and effort must be put in on learning the ranges of fire, how far distant is the target, so that the sights can be raised or lowered as the occasion demands. Wind and its effect on the flight of bullets is only one more of the things an expert marksman must know about.

All in all, the paratrooper, specialist that he is, becomes pretty much a Jack-of-all-trades in the firearms line. He has not only grown tougher and tougher since he came to training camp, but now he is rapidly becoming more and more dangerous. Even without any shooting weapons at all he's a bad customer to meet, for he carries a wicked knife, a formidable bayonet, and a pair of hands that have been trained in all kinds of rough-and-tumble fighting. The Marquis of Queensbury rules will not mean a thing when he meets up with Jap or Nazi. In hand-to-hand fighting he'll be the equal of any Jap afflicted with the habit of using jiu-jitsu, for the paratrooper knows blows with the edge of his hand, his boot, and his knee that are hardly parlor tricks. He can easily release himself from a one- or two-hand wrist hold, a stranglehold, a hair hold, or a bear hug; and conversely, he knows how to apply all of them most effectively. He has put in a great deal of practice in learning how to disarm an opponent when he himself is unarmed. The hip throw, the wrist throw, and the back-break are not pretty things to contemplate, while the use of the knife in in-fighting is something of a gory thought at best. There may be some who will

be shocked to learn that the paratroopers, mere lads from their own neighborhoods yesterday, are today rapidly becoming such hard and vicious fighters, but as Captain W. E. Fairbairn, author of one of the hand-to-hand fighting courses being taught our soldiers, has so ably said: "In war you cannot afford the luxury of squeamishness. Either you kill or capture, or you will be captured or killed." And that simple statement of fact is truer by far in this conflict, both for soldiers and civilians, than it has ever been before in the entire history of mankind.

## HOW THE PARACHUTE GREW UP

TO GET INTO THE AIR, to navigate its blue vastness at will with the ease and grace of a bird, has been one of man's ardent desires since the birth of the oldest mythology. The Greeks had their legends of Pegasus, the flying horse; of Apollo and his sun chariot; of Mercury with the winged feet and cap. Folklore of the Vikings tells of the Valkyries, and wings were a favorite adornment of war helmets, shields, and the prows of Viking ships. The earliest known art of Egyptians, Babylonians, Chinese, and other ancient peoples frequently depicts wings on both humans and beasts, while there are scores of Biblical references to travel through the air.

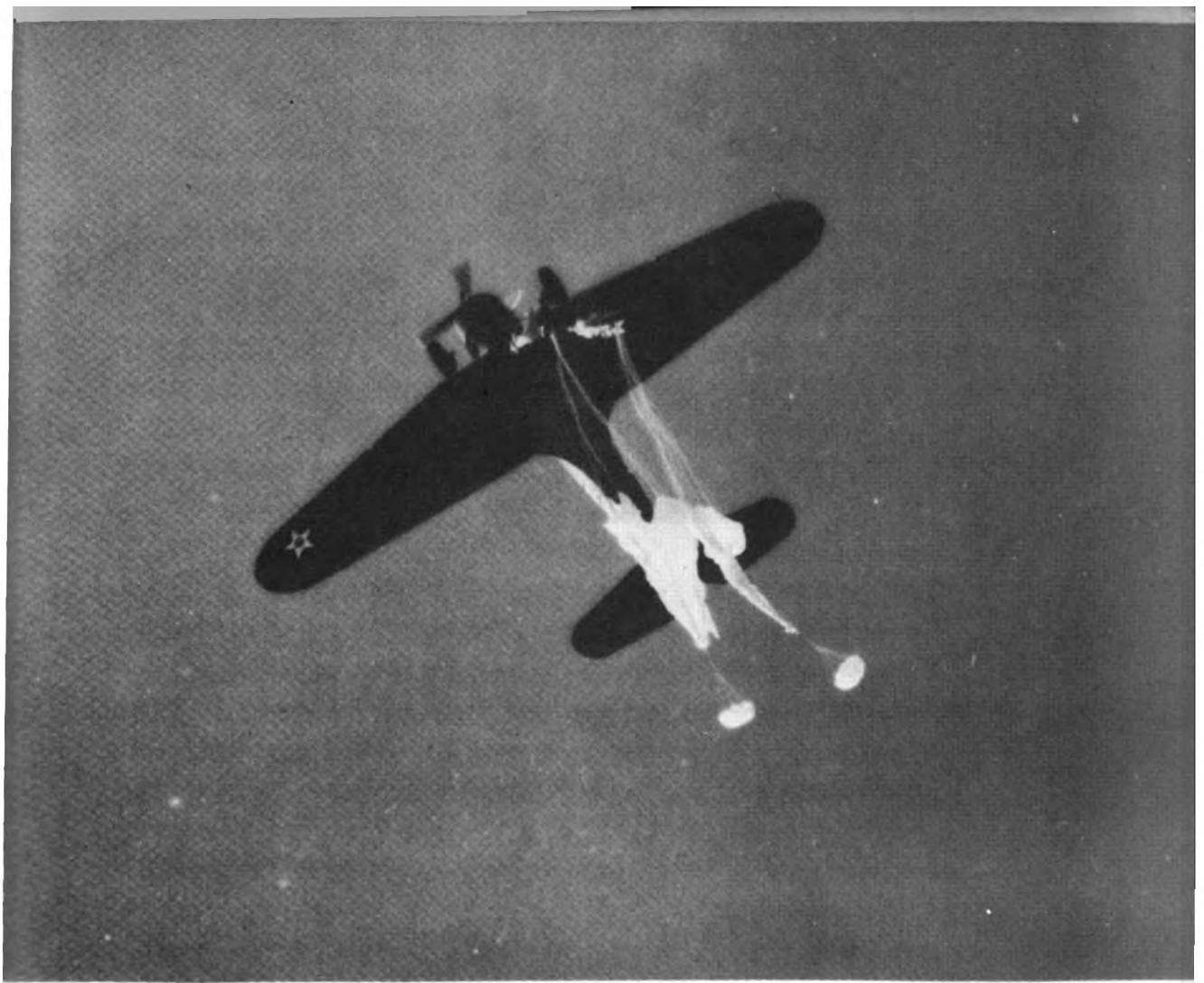
From all this and more it seems quite evident that man has had an overpowering hunger to fly for as many centuries as he has been on earth; but to get back to earth without the aid of a flying contrivance, however crude, was apparently a much later idea. Even Leonardo da Vinci, thinking of flying rather than parachuting, conceived on paper a sort of bird-man, equipping him with a pair of wings which would flap with motion of the arms, and said of this concept: "You may see that the beatings of its wings against the air supports a heavy eagle in the highest and rarest atmosphere . . . a man with wings large enough and duly connected might learn to overcome the resistance of the air, and by conquering it, succeed in subjugat-

ing it and rising above it." Alas, neither da Vinci nor any of the other dreamers could hope to succeed with their birdmen ideas, for no human shoulders have ever been strong enough to provide sufficient power for flight with man-made wings.

The great Italian inventor was on much solider foundation when he designed his parachute "12 braccia broad and 12 braccia high," but a long century had to elapse before Fausto Veranzio, a Venetian, modified the da Vinci idea by building a sort of square sail with cords attached to the corners and made a safe landing after jumping from a high tower. Some historians consider this episode doubtful, but if it did take place, then the first successful parachute jump was made about 1617. Another dubious incident of the early seventeenth century was the report in Simonde de Loubère's *History of Siam*, which tells of a person in that country who made many jumps with what the rather incoherent record describes as two umbrella-like affairs fixed to his belt.

Just what revived study and experiment with parachutes in France along about 1775, more than a hundred years after Veranzio, has remained something of a mystery, but if we, today, think of the men who parachute successfully from a plane as daredevils, how must we classify Sebastian Lenormand, a French physician who, in 1783, leaped from a tower with a cone-shaped apparatus of cloth and oiled silk only fourteen feet in diameter? It was in 1783, too, that the Montgolfier brothers navigated their first hot-air balloon, and with this advent of "flying machines," men forgot about jumping from towers and began to study and experiment with methods of descent from aerial craft.

In 1785 an Englishman, J. P. Blanchard, built a parachute with a basket attached and tested it with dogs as passengers. It worked so well he tried it himself, but his mathematical calculations proved more accurate for canines than for human



The pilot chutes perform yeoman service. Small as they are, they inflate instantly and serve to force the larger chute to open. These parachutes are being tested with dummies which weigh about 150 pounds. Life of a parachute is limited to seven years by Army regulation, and frequent tests with dummies are required.

freight, and he fell much faster. Although he survived, his injuries discouraged further experiments. To another Frenchman, André Jacques Garnerin, goes the honor of being the first consistently successful parachutist; to his elder brother, while a war prisoner in Budapest, is due the credit for being probably the first to promote the military advantages of a parachute, he having conceived the idea that it would enable soldiers to drop on troops from a passing balloon.

It was André, however, who built and demonstrated the parachute, an amazing affair of canvas on a wooden frame, 23 feet in diameter, with a passenger basket 4 feet deep and 2½ feet in width. It is estimated that this Rube Goldberg-like carrier weighed over 100 pounds. (Modern 24- and 26-foot chutes, complete with harness and pad, weigh approximately 21 pounds.) Garnerin made his first descent in France in October, 1797, from a balloon at an altitude of one and a quarter miles. Save for violent oscillation, which modern chutists have learned to control with the shroud lines and a more scientifically designed parachute, he suffered no ill effects, and, after a series of exhibitions in England, he returned to Paris. There he—and his sister, too, it has been said—continued jumping, to the great admiration of their countrymen.

If the famous Caterpillar Club, composed of men and women who owe their lives to parachutes, were an all-inclusive organization, Jordaki Kuparento would be Number One Caterpillar. When Kuparento's balloon caught fire over Warsaw, Poland, in 1808, at a high elevation, he lashed himself to a parachute, jumped, and landed safely.

From that time nearly eighty years passed with little progress in the theory and practice of parachuting. These pioneer years were marked by the failure of the avid English would-be parachutist, Robert Cocking; the successes of his compatriot, John Hampton; and those of America's first leading balloonist, John



Like a cloud of white mushrooms from the sky, the descending parachutes  
bring their human cargoes safely to earth.

Wise. But all this was before that memorable day in 1903 at Kitty Hawk, North Carolina, when Orville and Wilbur Wright made the first successful flight in a heavier-than-air machine. That changed the entire parachute picture, and brought on new problems for the parachute designer.

Parachutes for balloonists could be as spacious as bloomers and could be suspended from the inflated bag, but the airplane type must be as compact as an ultra-modern bathing suit, and must operate from a folded and compressed position. Stronger fabrics were needed to counteract the increase in speed of the airplane over that of the easy-going balloon, and the entire technique of jumping had to be revised. Some progress was made by American and French engineers, but their best efforts failed to keep pace with the development of the airplane before the beginning of World War I. True, Captain Albert Berry made the first successful descent from a plane in 1912 by packing the chute in a metal cylinder beneath the fuselage, directly over the axle. In view of the spectators, who doubtless held their breaths and crossed their fingers in hope, the intrepid Captain climbed down to the axle while the plane was in flight. That, in itself, was something of a daring gymnastic feat, but he managed to slip into the harness and off from the plane, and he descended safely. But this attached type of parachute, while reasonably satisfactory for thrilling exhibition purposes, was too involved for emergency use, a use which rapidly was becoming uppermost due to loss of lives in flying accidents, and which was soon to be high-lighted by application of the airplane as a war weapon.

Nevertheless, it remained for the exhibitionists, not the military people, to develop the knapsack types. In 1913 a circus balloonist, Charles Broadwick, brought out a knapsack type, 32 feet in diameter, weighing about 11 pounds without the harness; and to his dauntless daughter, Miss Tiny Broadwick, goes credit for the first free-fall parachute jump.

During the last war, balloon observers used parachutes to



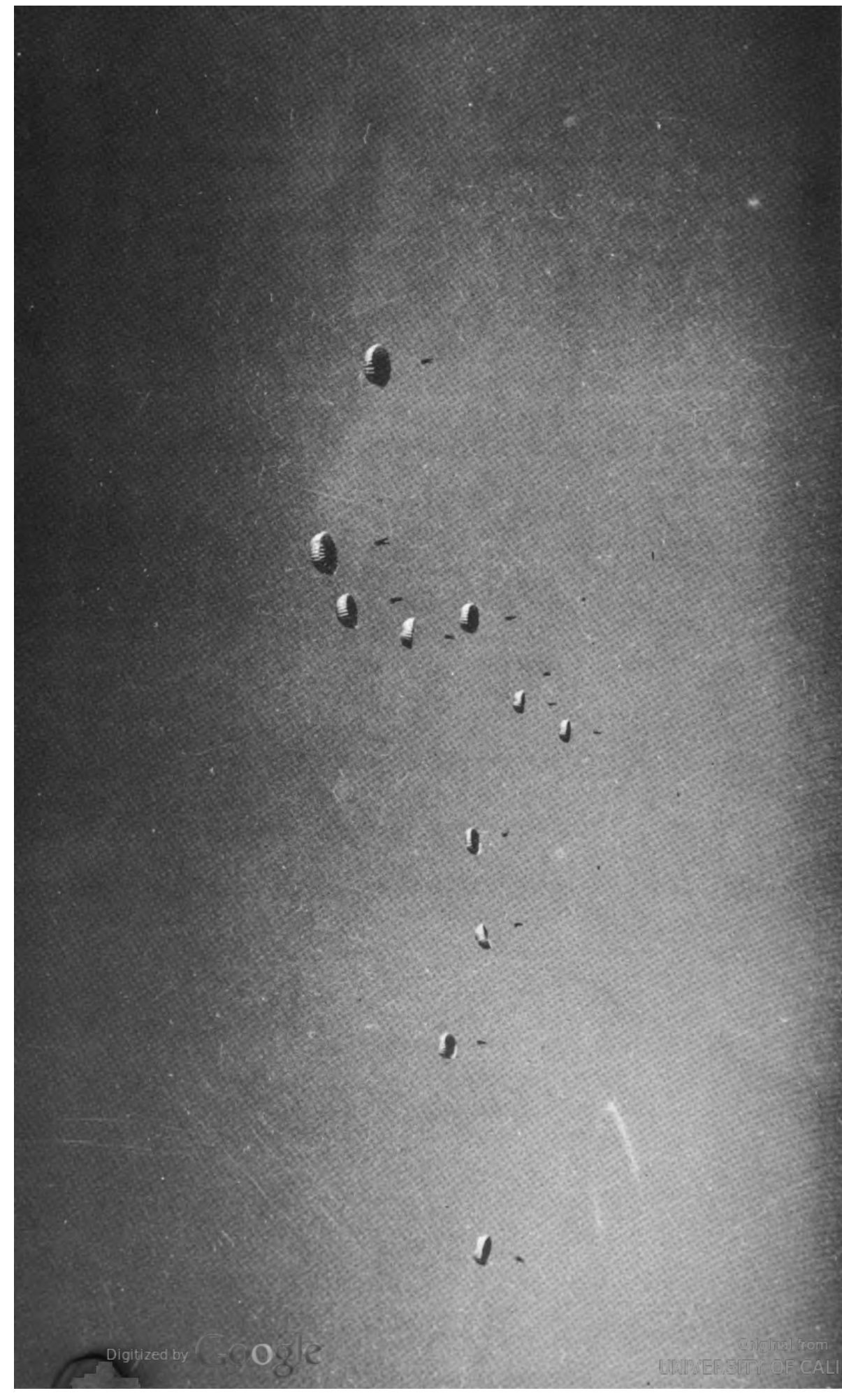
Not a picture from Russia or Germany, but an indication of how the United States paratroop forces are growing.

drop to safety when their "sausages" were shot at or set ablaze by plane or artillery fire, and a German aviator is reported to have leaped successfully from his burning plane; but the war ended before exhaustive and actual combat tests could be made on the then finest chute, perfected by the American Air Service and known as the A. E. F. parachute. The need was paramount, however, for a free type of parachute which could be operated by the jumper without hindrance from attachments to the plane, and in 1919 McCook Field, at Dayton, Ohio, became the scene of feverish and extensive studies on the part of a special board composed of Major E. L. Hoffman, Guy M. Ball, James M. Russell, A. Leo Stevens, J. J. Higgins, Glenn Martin, and Floyd Smith. The efforts of these men resulted in a silken canopy 26 feet in diameter, folded into a back pack. Its release during flight was facilitated by a small pilot chute, and the parachute weighed 22 pounds complete. Known as Type "A," it was a flat type which, when spread, formed a perfect polygon. Innumerable tests under all manner of conditions were made with dummies, but the supreme test came in 1922 when Lieutenant H. R. Harris, flying over McCook Field, pulled the wings off his plane. His successful bailing-out was the first emergency test of a free-type pack parachute. Further improvements, modifications, and tests followed, and in March, 1924, all Army and Navy fliers were required to wear the service pack.

Thus, finally, had parachute development attained a close parity with airplane improvement and progress. Many things were yet to come before perfection of the safety chute would cause the world's armies to adopt as an offensive weapon Leonardo da Vinci's safety contrivance for a falling man. This they have now done with a vengeance that more than vindicates the "crack-brained" idea of the elder Garnerin, the Budapest war prisoner who, basically at least, had the conception of modern paratroops nearly 150 years ago.



Like western fighters of olden days, air-borne troops often use their mounts  
for protection against enemy fire.



Twelve gleaming white canopies blossom in the sky as a plane load of first-jumpers make successful departures from the 1000-foot-high transport ship.

## MEET SOME ENEMY PARATROOPERS

VIRILE AS GARNERIN'S imagination must have been, he could hardly have envisaged the highly successful German parachutist attack on Waalhaven, Rotterdam's chief airport; or the hordes of Nazi warriors from the sky who descended simultaneously near the great Moerdijk Bridge in time to prevent its protective destruction by the Dutch. And certainly the air-borne invasion of Crete was a military success beyond all concept of a more or less idle eighteenth century dream by a daring but visionary Frenchman. But, strange as it may seem, behind these amazing German successes with paratroop soldiers lay several years of Russian adaptation and study of the pioneer experiments by the American Army at Kelly Field, Texas, as far back as 1929.

One report has it that as early as 1927 a youthful Russian officer completely and thoroughly astonished Stalin's entire General Staff by dropping eight parachutists behind "enemy" lines during army maneuvers to attack communications and strategic positions. It appears that neither the "enemy" nor the ground army troops to which the young officer belonged had any idea that this startling affair was to take place, and the budding strategist later admitted that he had fully anticipated his men would be quickly rounded up by opposing forces before they would have time to perpetrate sabotage or any form of

damage. Much to the surprise of everyone, including the parachuting troops, the eight men found they had time to blast certain vital bridges, actually to stage an attack from the rear, and to take and hold, in the opinion of the war-game umpires, a highly strategic area.

The potential possibilities of this unscheduled episode instantly struck the imaginations of Russian military men. The General Staff delved deeply into the practical side of fighters from the sky, and twelve months later the Russian army had its first parachute battalion. At the end of five years, in 1934, there were several thousand trained paratroopers in the Russian forces, and in the maneuvers of 1935 as many as 1200 completely armed soldiers parachuted from scores of planes over the Kiev airfield. Fabulous-sounding reports of other experiments, at which foreign observers were not permitted to be present, followed those of 1935, with 1800 chutists leaping almost simultaneously from planes; and still later the unheard-of number of 5700 is said to have been satisfactorily dropped to earth by their silken canopies.

"Stunt" was the word which summed up the majority of the official conclusions in most of the other countries of the world regarding this drastic change in military tactics. The British, the French, and the Americans all took cognizance of the possibilities, but little was done about it in any of these countries, although French investigators did report favorably, and in 1937 a small group of French paratroopers gave a skillful demonstration in their own war maneuvers. By and large, however, no one paid much attention except the Germans, who, with their customary ability to adopt the technique of others and make improvements, promptly went to work. Of what actually took place during the Nazi organizational period of their parachute troops, we can have only a vague idea, for the project apparently was kept as much of a secret as possible, but it has been said

that Hitler, immediately upon reading of neighbor Stalin's exploits, ordered the formation of Nazi paratrooper battalions.

Just how much was accomplished behind the German scenes during the next few years cannot at this time be known in detail, but in 1939, when Hitler's parachuting battalions made their first public appearance, not only foreign diplomats but also the German people were surprised. The tactical operations displayed at this public show were, we now know, almost identical with those used later in the capture of Rotterdam and Crete. The demonstrations, a dress rehearsal perhaps, proved beyond a doubt that the men involved had been highly trained, for while French experimental paratroop units had been able to form ground groups of soldiers within eight minutes after the men had left the plane, the men from beyond the Rhine used only two minutes from the time the signal to jump was given until they had rid themselves of their chutes on the ground and formed into fighting formations.

To accomplish this, Hitler's men had developed what we now call the static line, a device which opens the parachute automatically without the use of the manual rip cord, and which does so almost immediately the chutist has left the plane. This permits jumps from altitudes as low as 200 or 300 feet by experienced jumpers, and likewise allows a normal unit of ten to twelve men to make their several leaps from the plane in the seemingly incredible total time of eight seconds. With short descents like this, the enemy, if he has sighted the paratroopers dropping from the skies, which doesn't always happen, has little time to train his rifles or other types of gunfire before the paratroopers are on the ground.

Enough of the training routine of the German paratroopers has leaked out so that we know it is substantially the same as that of Americans. It has been said that the Nazis did practice one phase of training that thus far, at least, has not been done



*Above and right:* Even under the best possible of practice conditions, not all the boys manage to miss the trees, but by the time they get to jumping they're probably tougher than the trees.



in this country. Parachute soldiers, after having exhibited the proper degree of skill, were urged to take their chutes with them when going home on leave. They were then provided with aerial transportation which passed over or near their home towns, and, when the plane had reached a desirable point for a jump, the homeward-bound chutist simply leaped from the plane and literally dropped almost into his own back yard. The same procedure was followed on return to barracks, and the number of jumps made by men on leave was credited to their records. The story goes that, while not compulsory, this method of getting home for leave was quite popular in that it saved valuable traveling time and space in earthly modes of transportation; and one can imagine the esteem and admiration that met a home-town boy who dropped in on his friends and relatives from the sky.

A cloud of rumors has arisen about the technique and the ability of the Nazi paratrooper. Most of these, no doubt, are entirely unfounded, and may possibly be traced to the German propaganda bureau. That German paratroopers were wearing New Zealand uniforms when they parachuted onto Crete has been denied by both Nazi and British commands. That disguises have been used when men have been dropped behind Allied lines, particularly in the Low Countries, for sabotage and spy work, may be something different. There were many well-founded reports that this practice was followed, and it is far more reasonable to believe that disguises would help in this work, especially if the chutists jumped under cover of darkness with the intention of performing Fifth Column services than to suppose that they would utilize disguises if they were descending in broad daylight in the presence of their enemies, who would instantly recognize them for what they were, regardless of clothing.

The story that many dummies have been dropped coinci-

dently with a paratrooper attack for the purpose of drawing fire from the ground forces is also probably false. In the brief space of time it takes for a chutist to drop 200 feet from the plane to the ground there is small likelihood that he will be shot. Why, then, waste parachutes by dropping dummies? It is far more probable that the alleged dummies were counterparts of the containers used by American paratroopers, and that they carried arms and ammunition to the ground concurrently with the fighting men who would use them. There have also been reports of "invisible" parachutes, which are supposed to be made of a transparent material faintly colored a light blue to merge with the sky. If these reports are true, there may be a use for such parachutes in connection with the saboteur chutists, individually or in small units, instead of entire platoons or battalions. Then there are the parachutes which are supposed to have been soaked in paraffin or some other inflammable substance prior to a landing operation in order that they may be the more easily destroyed, once on the ground. It seems illogical that soldiers, who have been trained to get into the fight within eight minutes from the time they have left the plane, would take precious minutes to set fire to their chute canopies. Other equally unsupported rumors and stories have grown up around the paratroop soldiers of Nazi Germany. It is probably best to accept all with more than a grain of salt until the day comes when all can be told. Relatively, the Germans are, after all, past masters in the training of paratroop soldiers, for they have been on the job longer than the United States has, and it is reasonable to suppose that they may have discovered certain techniques as yet unknown to us and our allies. Time alone can let us know the truth.

Although German parachutists were used to only a minor extent in the Nazi attacks on Poland and Norway, they did have

their place in Hitler's conquering scheme of things. In both countries, individuals and small units were utilized as Fifth Columnists, as saboteurs, and were made use of to create confusion by slashing communications and blowing up strategic points. Unfortunately, competent witnesses of what happened at the Hague airport, at Dordrecht, at Waalhaven, and at other places in Holland on May 10, 1940, are today few and far between. German paratroopers in both Dutch and British uniforms were reported dropped. Nazi sky-fighters were said to descend at the rate of 500 an hour. The early Dutch communiqués claimed the invaders that landed on the Hague airport were annihilated. Both the Hague and the Waalhaven airfields were recaptured by the Dutch, only to be subsequently lost in the face of terrific bombing attacks. Certain it is that confusion reigned supreme, and doubtless the influx of many battalions of highly trained Nazi paratroopers contributed a major share to the terrible situation that existed for several days prior to the capitulation of Holland, Belgium, and France.

What with the proved existence of a large corps of Hitler's Fifth Columnists who could and did direct their invading comrades to vulnerable and strategic points, what with expert sabotage on communications, power plants, bridges, canals, and the further weapon of widespread incendiarism, there can now be no doubt that the aerial invasions of Holland and Belgium were long-planned maneuvers which were carried out with meticulous timing. This kind of warfare was then still too new, of too surprising a nature, too sudden and unexpected for England and France—countries which had rejected the Russian paratroop demonstrations as “stunts”—to cope with. The timing feature of these attacks alone is something to marvel at, for not only did the paratroopers play their rôles exceedingly well, but they were augmented and strengthened by great troop-

carrying planes, capable of landing on sea and on land, that brought thousands of reinforcements to the scene before the shock of the initial attack from the clouds had subsided.

Later use of German air-borne troops, both paratroopers and the plane-carried infantry, displayed this same careful attention to detailed preparation. There was a relatively minor use of the chute soldiers in the battle for Greece, in the neighborhood of the Corinth canal, but the climax, thus far, of application of what military men call "the vertical envelopment," came with the German capture of Crete, in May, 1941. The scheme of attack on that Grecian island has freely been admitted to be the general idea of a similar blow designed for England, when and if the Nazis feel they are powerful enough. Possibly, because of the Stalingrad campaign of 1942 and other forces now at work against our enemies, this effort may never take place, but the fact remains that the customary Teutonic thoroughness was again evident in the minutely thought-out plans when the Germans landed on Crete.

To date, the Japs do not appear to have made use of paratroops comparable to that of their allies, the Germans; but what they may have up their sleeves, if it is known, is not available for publication. Nevertheless, however far both the Japs and the Nazis may go with their training and development of the "vertical envelopment" maneuver, however expert they may become in the use of the parachute for landing armed forces, we may be sure that the chutist soldier of the United States, along with his Russian and British allies, will keep pace. Inherent "Yankee" qualifications fit the United States paratrooper far better than does the early training of the Jap or Nazi for this type of warfare, because of an individualistically inclined ancestry, because of a democratic form of government under which he has been brought up in the thought that he must think and act for him-

self, because of American ingenuity which has devised and will continue to devise methods and matériel which will be second to none in any army. These, coupled with the American boy's ability to be a "cold-jug," will make our Paratroop Battalions a force to command respect. There can be little doubt but that the country which first gave the world a vision of mass parachute jumping will take its rightful place in the development of that technique.

